Calhoun: The NPS Institutional Archive

DSpace Repository

Theses and Dissertations | 1. Thesis and Dissertation Collection, all items

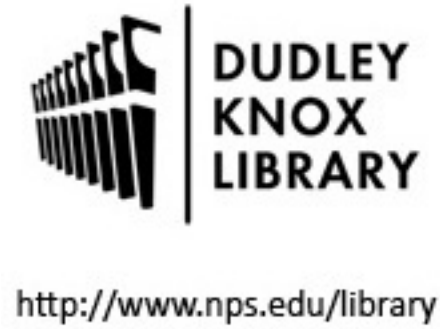
1985

Means by which sureties evaluate a contractor's financial stability.

Mlekush, Matthew L.

http://hdl.handle.net/10945/21426

Downloaded from NPS Archive: Calhoun



http://www.nps.edu/library

Calhoun is the Naval Postgraduate School's public access digital repository for research materials and institutional publications created by the NPS community. Calhoun is named for Professor of Mathematics Guy K. Calhoun, NPS's first appointed -- and published -- scholarly author.

Dudley Knox Library / Naval Postgraduate School
411 Dyer Road / 1 University Circle
Monterey, California USA 93943

DUDLEY KNOX LIBRARY
NAVAL POSTGRADUATE SCHOOL
MONTEREY, CALIFORNIA 93943

Means By Which Sureties Evaluate A Contractor's Financial Stability

by

MATTHEW L. MLEKUSH
LT. C.E.C. USN

A Major Report Presented to the Faculty of the
Department of Civil Engineering

In Partial Fulfillment of the Requirements
For the Degree of

Master of Science in Civil Engineering

University of Washington

August 1985

T222880

ACKNOWLEDGMENTS

The researcher wishes to express sincere appreciation to Professor Jimmie Hinze for his guidance in the preparation of this manuscript. In addition, special thanks to my fiancee, Miss Cynthia Cook, for her assistance in helping with the research and typing of this report. Thanks also to the members of the surety association who completed the questionnaires and participated in the interviews. Their time and expertise made this paper enjoyable and personally educational.

University of Washington

Abstract

MEANS BY WHICH SURETIES EVALUATE A CONTRACTOR'S FINANCIAL STABILITY

by Matthew L. Mlekush

There are alarming statistics on the growing number of construction company failures and the tremendous losses imposed on the public. This report considers one particular area of construction contracting that often is a determining factor as to whether a contractor will get the chance to bid on a project or not. This decision is most often made by a surety bonding officer. The purpose of this paper is to try to inform those contemplating getting into construction or those just starting out, exactly what it is that they will be required to provide when applying for a bond, and on what basis they and their corporations will be evaluated during that bonding process. Data for this paper were compiled by mail survey, by personal interview and through extensive literature research. The paper includes information on the preceived needs of sureties and ends with a hypothetical conclusion of how the results of this study might be applied in the construction/bonding field.

TABLE OF CONTENTS

	Page
List of Figures	iii
List of Tables	iv
Glossary	v
Introduction	1
Chapter I: Review of Literature	3
Functions of Bonds	3
Types of Contract Bonds	4
Primary Functions of a Surety	8
Business Failure Trends	10
Problem Areas	24
Defaulting Under Bond	27
The C's of Credit	30
Chapter II: Prequalification and Warning Signs	33
The Business Record	33
The Personal Record	35
The Trade Payment Record	37
Choosing Competent Associates	40
Warning Signs	42
Chapter III: Research Methodology	49
Chapter IV: Results of Questionnaire	54
Considerations When Issuing a Bond	54
The Young Contractor	64
Bonding Limits and Bid Results	66

Page

Rejection of a Bond Request 68

Accuracy of a Bid 69

Keeping In Touch During Construction 71

Warning Signs 73

Failures 74

Chapter V: Interview Results 77

Construction Failures 77

Reasons Given For Failures 78

Ratio Analysis 80

The Loss Ratio 83

Accounting Techniques 84

Chapter VI: Summary of Study 86

Chapter VII: Conclusions 90

Chapter VIII: Recommendations to Contractor 94

Recommendations For Further Study 98

Footnotes 100

Bibliography 102

Interviews 104

Appendix A: Data Figures 105

Appendix B: Documents & Agreements Used by Sureties 118

Appendix C: Surety Rates & Loss Ratio 125

Appendix D: Questionnaire 130

LIST OF FIGURES

Figure Page

1. Failure Rate of Young Business Firms 12
2. Total Business Failures & Failure Rate for WA. 13
3. Business Failures & Liabilities for Seattle WA. 15
4. General Building Contractors/Constrution Failures 18
5. Construction/Failures & Average Liability Per Failure 19
6. Failure by Percent & Distribution by Sector 1983 20
7. Construction Failures by Age of Firm 1982 22
8. Construction Failures by Age of Firm 1983 23
9. Ratio Analysis Evaluation 57

LIST OF TABLES

Table		Page
1.	Causes of Construction Failures 1982 & 1983	17
2.	Assessment of Contractor's Stability	60
3.	Documents/Information Required of a Contractor	63
4.	Comparison to Key Business Ratios 1971	106
5.	Comparison to Key Business Ratios 1973	107
6.	Comparison to Key Business Ratios 1975	108
7.	Comparison to Key Business Ratios 1976	109
8.	Comparison to Key Business Ratios 1978	110
9.	Comparison to Key Business Ratios 1979	111
10.	Comparison to Key Business Ratios 1980	112
11.	Comparison to Key Business Ratios 1982	113
12.	Comparison to Key Business Ratios 1983	114
13.	Ratio Analysis for the Fluor Company 1978	115
14.	Ratio Analysis for the McDermitt Company 1978	116
15.	Ratio Analysis for the Dillingham Company 1978	117

GLOSSARY

CURRENT ASSETS:

Current assets, include cash and those assets which in the normal course of business will be turned into cash usually within a year from the date of the balance sheet. Current assets may be looked upon as consisting of the following six sub groups:

a) Cash
b) Marketable Securities
c) Accounts Receivable-Less Allowance for Doubtful Accounts
d) Inventories
e) Prepaid Expenses
f) Costs in excess of related billings

FIXED ASSETS

Included in fixed assets are land, buildings, machinery and office equipment.

CURRENT LIABILITIES

Current liabilities include all debts which will fall due in the coming year. The sub groups making up this category are: accounts payable, notes payable, accrued expenses payable, and federal income taxes payable. The current assets are the source from which payments are made on these debts.

LONG TERM LIABILITIES

Long term liabilities differ from current liabilities in that these debts are due more than one year from the date of the financial report. The sub groups making up this category are: deferred income taxes, and debentures.

NET WORKING CAPITAL

Net working capital is used synonymously with "net current assets", and is determined directly from the balance sheet. The net

working capital, is the difference between the "total current assets", less the "total current liabilities". In other words, working capital, represents the amount that would be left free and clear if all current liabilities were paid off. A company's ability to meet obligations, expand volume and take advantage of opportunities is often determined by its working capital.

NET SALES

With reference to the construction field, net sales are actually called "operating revenues". They represent the primary source of money received by the company from its customers for services rendered.

OPERATING PROFIT

Operating profit is simply the "operating revenues" less all operating costs, namely cost of contracts.

NET PROFIT

Net profit is calculated by deducting all costs and expenses from the "operating revenues". These costs/expenses are composed of: contract costs, general and administrative costs, interest expenses and provisions for federal income taxes.

NET WORTH

Net worth is synonymous with the term "stockholders equity". It includes whatever value is placed on"capital stock" plus earnings reinvested in the business. In other words, if the company debts including debts to bond holders, are subtracted from company assets, what is left should belong "free and clear" to the stock holders, their equity in the business. Simply , net worth is the difference between total assets and total liabilities.

CURRENT RATIO

Current ratio is found by dividing the current assets by the current liabilities. "This ratio is a rough indication of a firm's ability to service its current obligations. Generally, the higher the current

ratio, the greater the "cushion" between current obligations and a firm's ability to pay them. The stronger ratio, reflects a numerical superiority of current assets over current liabilities" (12). As an example, should a company's current assets total $350,000 while his current liabilities total $175,000, his current ratio would be 2.00 which means that for each $1 of current liabilities, there are $2.00 in current assets available to back it up.

NET SALES/WORKING CAPITAL RATIO

Working capital is a measure of the margin of protection for current creditors. It reflects the ability to finance current operations. Relating the level of sales arising from operations, to the underlying working capital, measures how efficiently working capital is employed. A low ratio may indicate an inefficient use of working capital while a very high ratio often signifies overtrading - a vulnerable position for creditors.

NET PROFITS ON NET WORKING CAPITAL

The net profit margin represents the "cushion" available to the business for carrying receivables and for financing day-to-day operations. A high ratio indicates the company's ability to use working capital to generate profit. A high ratio may indicate liquidity problems and inability to meet current obligations, while a low ratio may indicate inefficient use of working capital or inability to produce a profit.

NET PROFITS ON NET SALES

The net profit is obtained by dividing net profit after taxes, by annual net sales. This reveals the profits earned per dollar of sales and therefore measures the efficiency of the operation. Return must be adequate for the firm to be able to achieve satisfactory profits for its owners. This ratio is an indicator of the firm's ability to withstand adverse conditions such as falling prices, rising costs and declining sales.

DEBT TO TANGIBLE NET WORTH

"This ratio expresses the relationship between capital contributed

by creditors and that contributed by owners. It expresses the degree of protection provided by the owners for the creditors. The higher the ratio, the greater the risk being assumed by the creditors. A lower ratio generally indicates greater long term financial safety. A firm with a low debt/worth ratio usually has greater flexibility to borrow in the future" (12).

CURRENT LIABILITIES TO NET WORTH

The current liability ratio is derived by dividing current liabilities by net worth. This contrasts the funds that creditors temporarily are risking with the funds permanently invested by the owners. If the net worth is small and/or the liabilities are larger, less security is offered to the creditors.

INTRODUCTION

In 1985 the concepts of business success and business failure are beginning to acquire almost entirely new meanings. Today, companies can enter the market and find that in a matter of a few short years, they are growing as much as or more than established firms who have been involved in industry and production for decades. As an example, consider the Apple Computer Corporation. Entering the market in 1981 (1), Apple climbed the success ladder with such aplomb, that in a matter of only 4 years, they are now listed as #234 in Fortune Magazine's listing of the top 500 Advancing Industries of the Nation (2). By the same token, one might also look at United States Steel Corporation (3). In business for well over 20 years, it has seen a gradual decline in steel sales since 1984, and has recently closed steel plants that had been actively producing for years (4).

It seems that the construction industry too has felt the changes that this new redesigning of success and failure have brought to bear on the industry . According to the most recently published Dun & Bradstreet "Business Failure Record for 1983", in 1983, over 5,200 construction businesses failed, leaving over 1 billion dollars in liabilities that the public was ultimately forced to absorb. Because the number of failing construction contractors is ever increasing, and because these failures result in liabilities that the public is ultimately expected to absorb, this paper will first discuss what

those within the industry and those who have studied the topic in depth have determined to be the greatest areas of difficulty for these faltering construction firms.

The purpose of this paper, is to review what factors may be leading construction companies to failure. Conversely, the focus will also be on those facts that indicate financial strength and success. The paper will center on the area of surety bonding, for it is at the bonding stage that many companies' success abilities or inabilities are evaluated. It will deal with what bonding agents look for in a contractor and in a corporation, what carries the most weight in their evaluation and what kinds of documentation will be required.

It is hoped that the information presented here can be used by those who are considering entering the construction field, and by those who are already in the field but are still trying to get all the facts.

With this information a contractor should be able to determine what is expected by the surety, evaluate whether the company can meet those expectations, determine what other things might need to be done before approaching the surety, e.g., finding a banker, getting together the required financial documents, finding a CPA that can present the surety with the kinds of information it will require, choosing an attorney to handle all the legal transactions, etc.

Given the proper information and a chance to evaluate the company , a contractor should be able to approach any surety company with confidence and assurance to apply for bonding.

CHAPTER 1 :
LITERATURE REVIEW

What do bonds actually do and what are their functions? To answer this question, the fundamentals of bonding (terminology and types) will be presented.

Functions of Bonds (5)

1) "Guarantee that the bonded project will be completed.
2) Guarantee that the laborers, suppliers and subcontractors will be paid even if the contractor defaults. This often results in lower prices and expedited deliveries.
3) Relieve the owner from the risk of financial loss arising from liens filed by unpaid laborers, suppliers and subcontractors.
4) Smooth the transition from construction to permanent financing by eliminating liens.
5) Reduce the possibility of a contractor diverting funds from the project.
6) Provide an intermediary --the Surety--to whom the owner can air complaints and grievances.
7) Lower the cost of construction in some cases by facilitating the use of competitive bids".

What exactly is a surety bond? This is a three-party contract entered into by a contractor, the owner awarding the job, and a surety (responsible for bonding the contractor). In this contract, the contractor and the surety guarantee the owner that completion of the construction project awarded to this contractor will indeed take

place. The contract also guarantees that the contractor will meet all the plans, specifications and construction guidelines that are set forth in the contract. The surety must guarantee to the owner that the contractor will perform the required obligations, and that if they are not performed, that the surety will see to it that it is completed in a correct and timely manner.

It is by bonding and thus guaranteeing the performance of contractors, that sureties provide the financial backing that enables contractors to operate with a minimum amount of risk to those who both hire them or subcontract with them.

Having a job bonded allows everyone a chance to give their best prices (as in the case of suppliers) and bids (in the case of sub contractors), for if a contractor obtains bid, performance and payment bonds, then all concerned (owners, suppliers and subcontractors) are guaranteed either completion of the project or full payment for services rendered or supplies delivered.

Types of Contract Bonds

The following are the three bonds to be described and examined within this paper.

1) **A Bid Bond** guarantees the sincerity of a bid. If the contractor fails to meet the conditions laid down in the contract, the bid bond is forfeited. This will result in a default that generally entitles the owner to either the difference between the contract bid price and the next lowest bid price or the penalty of the bond - whichever is less. To the surety corporation, the execution of a bid bond is of utmost importance, for once this has been done, the major part of the

surety's underwriting and thorough investigation has been completed.

When a surety issues a bid bond, it sets its mark of approval on the contractor. That approval has been gained only after that contractor's records, past history and personnel have all been exposed to stringent evaluation standards. A surety's bonding of a contractor says that the contractor has met all the surety's standards, qualifying it for the surety's financial support and confidence. A bid bond is terminated when a contract is signed and payment and performance bonds have been issued.

2) **A Performance Bond** is issued after a proposal has been accepted. The performance bond usually has a face value equivalent to 100% of the contract amount. It is this bond that stipulates that the work will be completed in accordance with the plans and specifications. The performance bond is designed to assure the owner only, that the project will be completed as specified, it does not guarantee the contractors' creditors payment of unpaid obligations. Protection for the creditors is covered in the third and final type of bond - the payment bond.

3) **Labor and Material Payment Bonds** are usually issued in conjunction with performance bonds. Generally, each has the same penalty as the performance bond. The State of Washington requires that payment bonds be issued for 100% of the contract price unlike the federal projects in which the face value of the bond is dependent on the contract amount according to the following schedule (6):

Projects under $ 1 million ------ 50% of contract amount

Projects $1 To $5 million ------ 40% of contract amount

Projects Over $5 million ------ least of 40% or $2,500,000

A payment bond guarantees that the contractor will pay all accounts arising from the job. This allows the owner to take possession of a lien-free project when all has been completed. For the owner, the payment bond makes it possible for material suppliers and subcontractors to provide their goods and services at their lowest costs. The payment bond makes the contractor, a lower credit risk than an unbonded contractor. The payment bond also covers the owners obligation to the community by helping to "ward off" the poor public relations that might result from the failure of a contractor to "pay off" local bills. (A sample of each type of bond and bid bond order form may be found in Appendix B.)

At this time it would be best to explain what exactly a surety company is and what its functions are. The concept of suretyship is historically old and well-established. Historically speaking, the documentation of today, dates the oldest surety contract back to 106 BC (7). That particular contract conditioned the time of payments, agreeing that half of the payment was to be received at the securement of the bid and the rest was to be paid at the completion of the project. By 1356 AD, English law required that any man wishing to take up a contract, was to come before the owner issuing the contract with 6 experienced masons who were willing to swear to the fact that the bidding contractor was capable of doing the job he had bid on, and, that if he failed to complete the job that they themselves would complete the projects under the same contracted terms (8). This is what a surety company does when it bonds a company today. It, like the masons, guarantees the capability of the bidding contractor, and guarantees completion of the project. The surety then

has to complete the project if the contractor fails to meet the contracted conditions.

The first corporate surety was formed in the U.S. in 1876, and by1965, there were approximately 150 corporate sureties operating throughout the nation (9). Most U.S. corporate sureties are insurance companies, primarily because they (as large financial institutions) have the capital necessary to enable them to make large commitments in the form of surety bonds. It would be rather natural to assume that surety bonds being issued through insurance corporations, would be much like insurance. This however, is not the case ! A surety is basically a credit function. While insurance is set up under the presupposition that losses will occur, sureties are not. They are rather an "in case of emergency" safeguard. In all actuality, the surety is more closely related to the banking/credit system than it is to the insurance system. No self-respecting bondsman ever expects an issued guarantee to be called in. Although recent years have proven this supposition false, the surety industry still clings to its initial premise that suretyship is supposed to be a loss free business. Unlike insurance, which moves the risk of loss from the customer to the insurer, suretyship does not involve such a transfer. The revenues generated from insurance premiums are created with the specific purpose of being sufficient to cover the losses incurred by all policy holders. In sureties, instead of a premium revenue fund being the sole source for the distribution of losses, the underwriters have "two" separate and distinct accounts from which losses can be satisfied. The largest and most important fund is referred to as "resources of the principal on the bond." This is the surety's

assessment of the contractors ability to pay. The second is the bond premium, this is a fee charged by the bonding company for prequalifying the successful contractor and for lending its credit to the contractor. The premium consists of a fee that is equal to approximately 1% of the contract amount, i.e., this is a small fund. With a clear understanding of these two funds, it is obvious that the premium fund can *never* take the place of the larger, it can only supplement the resources of the principal. It would stand to reason that no surety underwriter should try to accumulate large amounts in premium revenues by accepting a large number of substandard risks. It is understood that surety representatives will be well-versed in investigating, evaluating and anticipating situations which could lead to a substantial loss and will apply the necessary corrective measures to limit the risk.

Primary Functions of a Surety:

1) Prequalification
2) Providing guarantees of Performance and Payment
3) Completion of a project or payment of the bills in the event of a Contractors inability to do so.

As secondary functions, they:

a) Expedite a project by assuring subcontractors and materials suppliers of payment or of the credit worthiness of the owner.
b) Keeping contractors out of trouble by refusing to bond projects that the contractor might be incapable of performing or in which the risks are too great.
c) Provide management assistance for the contractor.

The surety is set up on the supposition that bonding is to be a no loss situation. On this premise, a surety issues a bond to a contractor under its good name, guaranteeing performance and payment. Thus, a surety must have some means by which to evaluate a contractor before they will "go on the line" for them.

Sureties compete for bond business just as other industries compete for the sale and service of their goods. Because of this competition, sureties have varying underwriting philosophies and evaluation techniques. "Contractor prequalification methods and judgements may vary widely depending on the contractor's specialty, geographic area, in-house expertise, financial picture, operational capacity, and management group" (10). Judgment plays an important role and helps explain why sureties place varying significance on those areas considered in the bonding process. Even though the surety business is not an exact science, it does appear that all sureties acknowledge the need to do the following: (10)

a) evaluate and verify the financial data of each contractor

b) examine any on going work as well as work previously completed

c) examine contract specifications

d) ensure adequate funding will be available to meet contract terms

The evaluation procedure mentioned above, is the underwriting process, commonly known as "surety prequalification". It is through this process that the surety determines a contractors bondability. The type of prequalification referred to within this report is "surety prequalification" and is not to be confused with the more familiar usage that relates to the prequalification of owners on certain

projects. One of the major factors derived from the prequalification process is the bonding capacity" of the contractor. This is considered to be of utmost importance for it directly effects the amount of work the contractor may have at any one time. This capacity is usually reviewed and revised on an annual basis. This will be looked at in greater detail when the surety responses complied through the questionnaires are analyzed.

A surety agent is not paid unless a bond is sold, yet, for the contractor and ultimately for the surety's sake, agents will deny a bond to those whom they feel are poor risks. If a surety refuses to bond a contractor, that contractor will usually not be considered a qualified bidder. One of the primary purposes of prequalification is the "weeding out" of substandard contractors who may not possess the necessary backing to see the job through to completion in a timely and professional manner. A second vital aspect is that it stimulates greater competition among qualified contractors and increases competition among material suppliers, subcontractors and bankers. For these reasons prequalification has the general approval of the construction industry.

Business Failure Trends

Before prequalification is discussed in greater depth, it is imperative to recognize its importance. What is it about the construction contracting field that makes surety companies so cautious?

According to the most recently published Dun & Bradstreet "Business Failures Record for 1983", over 31,334 businesses failed in 1983 leaving over 16 billion dollars in liabilities that had to

absorbed into the economy in some way (10). Of those thirty-one thousand failed businesses, over five thousand were construction contract related, carrying with them over one billion of the 16 billion dollar liabilities previously mentioned. Figures 1-3 give a greater understanding of these figures. While Figures 1 through 3 do not directly pertain to the construction field, they do include:

a) The mining and manufacturing industry

b) The wholesale trade industry,

c)The retail trade industry and

d) The commercial service industry.

They are included here, because they give the viewer an overall appreciation of just how difficult it is to have a lasting successful business. **Figure 1** covers a time period of 24 years, 1960 -1983, in which the percent failure for businesses less than 5 years of age are plotted with respect to time. It is evident in Figure 1, that on an average, over 50% of the businesses which failed, had been in operation less than 5 years. Firms in this age classification are often referred to as being "young" or not having a "track record". It is interesting to note that the year 1981 was the first time the percent failure dropped below the 50% range, as was also the case in the following two years. Obviously, when the percent failure decreases for young firms, it must be balanced by an increase in the percent failure for the veteran firms. **Figure 2** presents information on the State of Washington. Here again, total industry failures have been plotted with respect to time, for the years 1970 and 1980-1983. As would probably be expected, the "number"of industries which failed, have tended to increase with time. One graph shows that in 1970

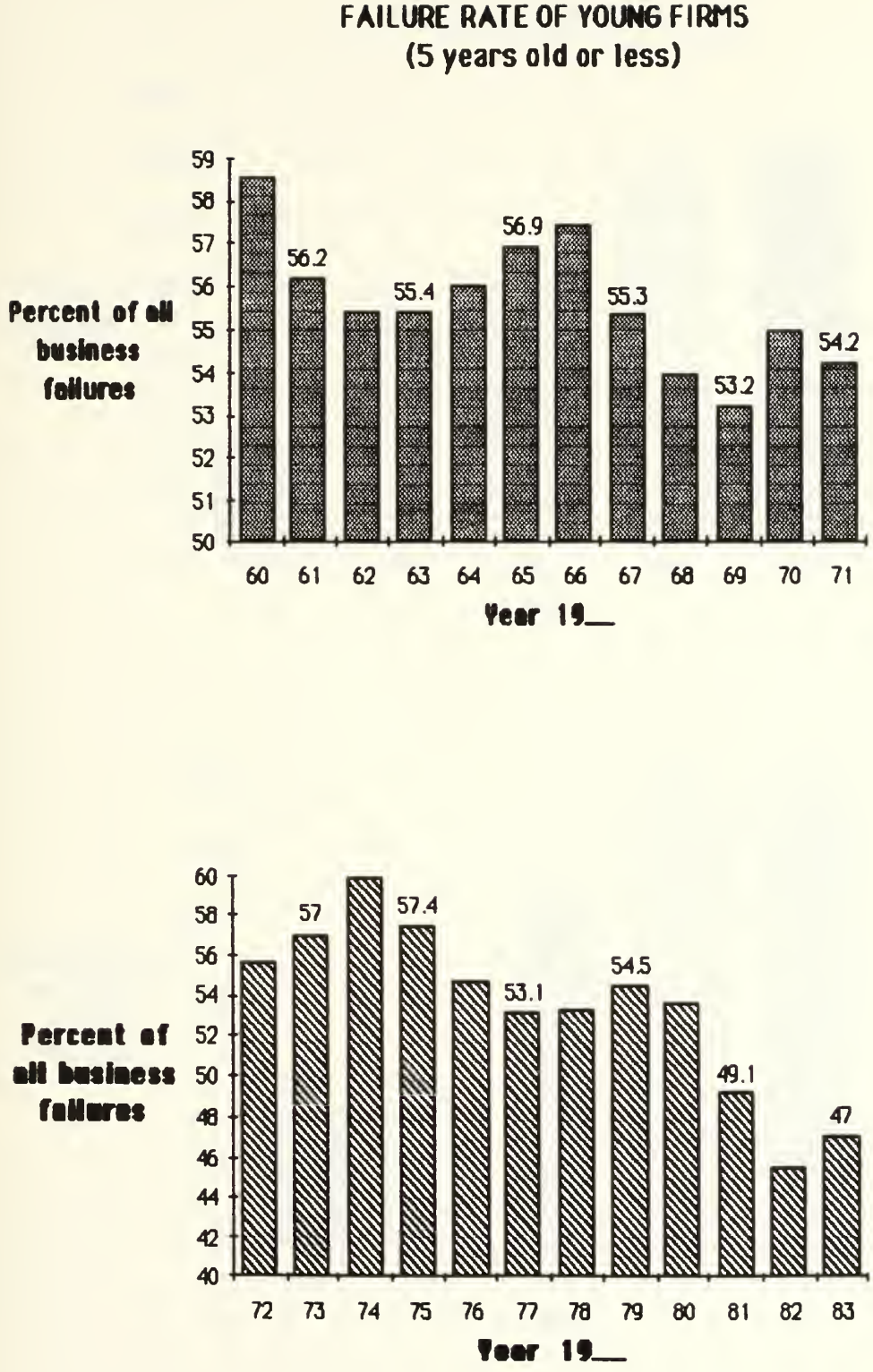

FAILURE RATE OF YOUNG FIRMS
(5 years old or less)
Percent of all business failures
59
58
57
56
55
54
53
52
51
50
56.2
55.4
56.9
55.3
53.2
54.2
60 61 62 63 64 65 66 67 68 69 70 71
Year 19__
Percent of all business failures
60
58
56
54
52
50
48
46
44
42
40
57
57.4
53.1
54.5
49.1
47
72 73 74 75 76 77 78 79 80 81 82 83
Year 19__

Fig-1

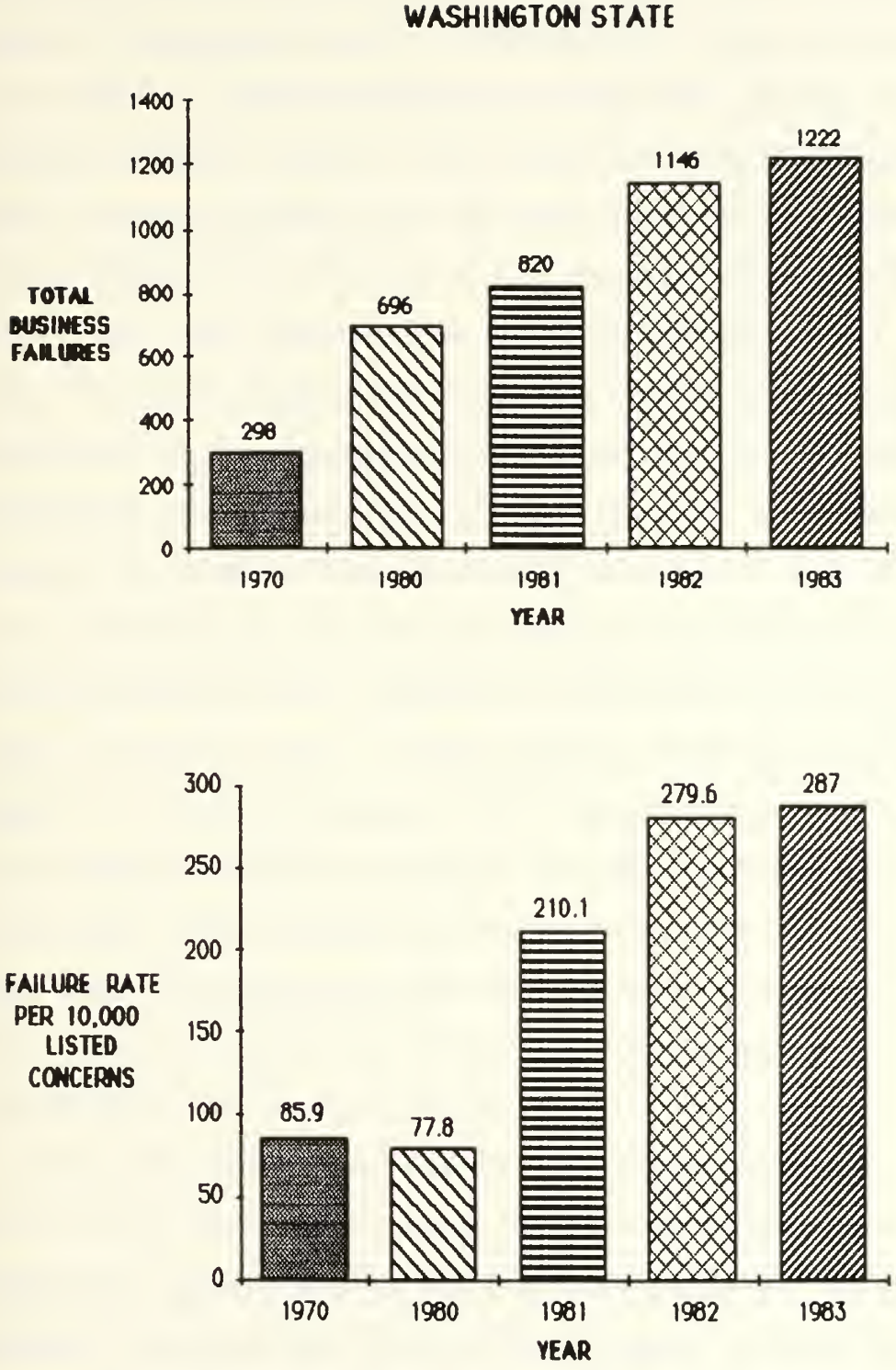
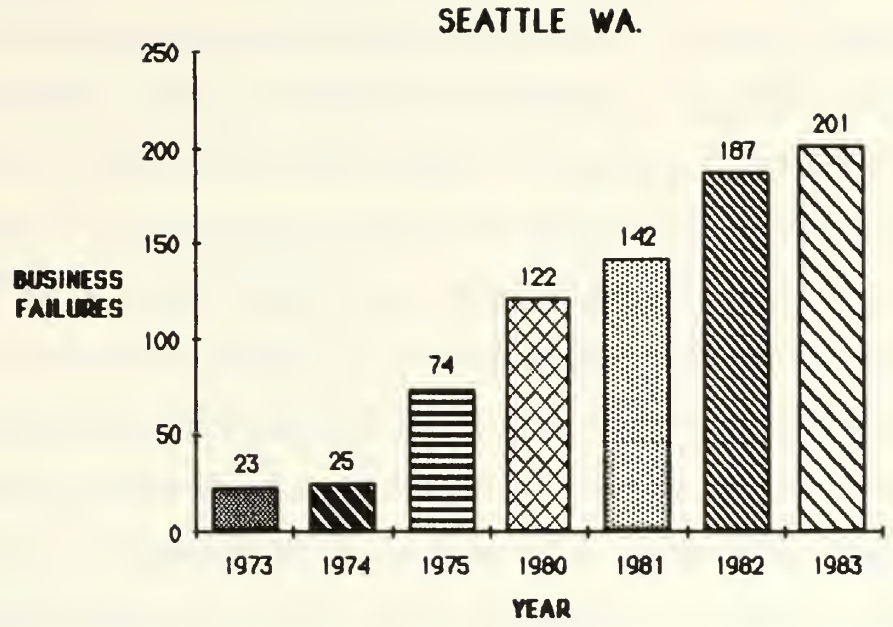

WASHINGTON STATE
TOTAL BUSINESS FAILURES
1400
1200
1000
800
600
400
200
0
298
696
820
1146
1222
1970
1980
1981
1982
1983
YEAR
FAILURE RATE PER 10,000 LISTED CONCERNS
300
250
200
150
100
50
0
85.9
77.8
210.1
279.6
287
1970
1980
1981
1982
1983
YEAR

Fig-2

approximately 300 businesses failed in Washington, while in 1983 the number of failures had increased to an astonishing 1,222, an increase of over 400% . It should be emphasized at this point, that one could develop a distorted picture if they merely looked at the "numbers game". For a more realistic view, one needs to examine the number of failures along with the "failure rate". The importance of this is demonstrated quite effectively by examining the years 1970 and 1980. It would first appear that 1980, associated with 695 industry failures, was, by far, substantially worse than the year 1970 which reported only 298 failures. This, however, is not the whole picture since the failure rate in 1980 was actually lower than in 1970. There were (77.8/10000 listed concerns as opposed to 85.9/10000 listed concerns) that year. What is alarming, is noting that in only one year, 1980 to 1981, the rate of failure showed a three-fold increase. **Figure 3** is a further breakdown of the information shown in Figure 2, as it deals with the City of Seattle . Instead of addressing failure rate as Figure 2 did, it presents information on the total liabilities of those firms which failed during the reporting year. It is difficult to imagine that in 11 years the total average liability increased from $13,233,000 in 1973 to $117,365,000 in 1983.

These losses are not losses that sureties can afford to absorb, for in a "no loss" business philosophy, there are no buffers for such occurrences. Because sureties insist on holding onto their "no loss" philosophy, they have been forced to become experts in the fields of analyzing and evaluating each business's probable chances for success or failure. Studies have been conducted trying to itemize


SEATTLE WA.
BUSINESS FAILURES
250
200
150
100
50
0
23
25
74
122
142
187
201
1973
1974
1975
1980
1981
1982
1983
YEAR

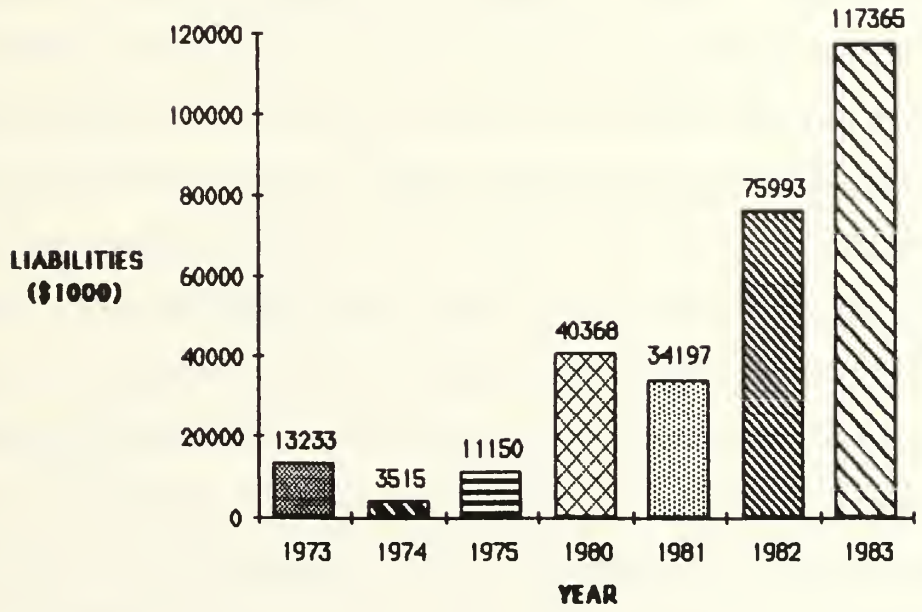

LIABILITIES ($1000)
120000
100000
80000
60000
40000
20000
0
13233
3515
11150
40368
34197
75993
117365
1973
1974
1975
1980
1981
1982
1983
YEAR

Fig-3

what exactly may lead to the eventual "downfall" of a business. Sureties have focused on the factors that seem to lead to or have led to construction contractor failures. (See **Table 1**) Figures 4 through 8 take an in-depth look at the number of failures occurring in the construction field during the past few decades. They give a better perspective of when failures are most likely to occur, and the financial impacts associated with them. Graphs showing the age of the business and those showing the incurred liabilities are included. **Figure 4** is nationwide in scope and deals with only general building contractors (no subcontractors included). The construction failures are plotted against time, in varying increments, and show a rising number of downfalls. These values should be looked at in conjunction with the "failure rate" to obtain the true performance of the market. The first graph of **Figure 5** represents much of the information found in Figure 4, but is broader in nature in that it includes all construction firms, not solely the general contractors. The second graph pertains to the "average" liability per failure, and thus gives a general idea of the economic impact associated with each failure. By noting the average liability per failure and the total number of failures occurring during that year, one can determine the total number of dollars for which the construction industry was liable for in that particular year. As an example, in 1983 alone there were 5,247 construction failures, each with an average liability of $295,131 (11). This equates to a total liability of $1,548,554,000 (over 1.5 Billion Dollars). The column graph in **Figure 6** presents the information in a different manner. This figure deals with the

CAUSES OF CONSTRUCTION FAILURES--1982 & 1983(26)

Construction

Underlying Causes	Apparent Causes	(percent) 1982	1983
Neglect		**0.2**	**0.5**
Due to:	Bad Habits	0.1	0.1
	Poor Health	0.1	0.3
	Marital Difficulties	0.0	0.1
Lack of Experience in the line		**4.4**	**5.3**
Lack of Managerial Experience		**8.9**	**9.2**
Unbalanced Experience **		**17.5**	**26.8**
Incompetence		**52.5**	**57.3**
	Inadequate Sales***	78.9	83.7
	Heavy Operating Expenses***	21.9	23.0
Evidenced by	Receivables Difficulties***	6.9	6.6
inability to avoid	Inventory Difficulties***	1.2	0.2
conditions which	Excessive Fixed Assets***	2.0	2.0
resulted in:	Poor Location***	0.2	0.0
	Competitive Weakness***	12.2	6.0
	Other***	3.6	0.0
Disaster		**0.5**	**0.8**
	Fire	0.2	0.0
	Flood	0.0	0.8
	Burglary	0.0	0.0
	Employees' Fraud	0.1	0.0
	Strike	0.1	0.0
	Other	0.1	0.0
Reason Unknown		**16.0**	**0.0****

** Experience not well rounded in sales, finance and purchasing

*** Since Failures are attributed to a combination of apparent causes, the totals of these rows exceed 100.0

****Procedures were revised to allocate cases to the above categories.

Table-1

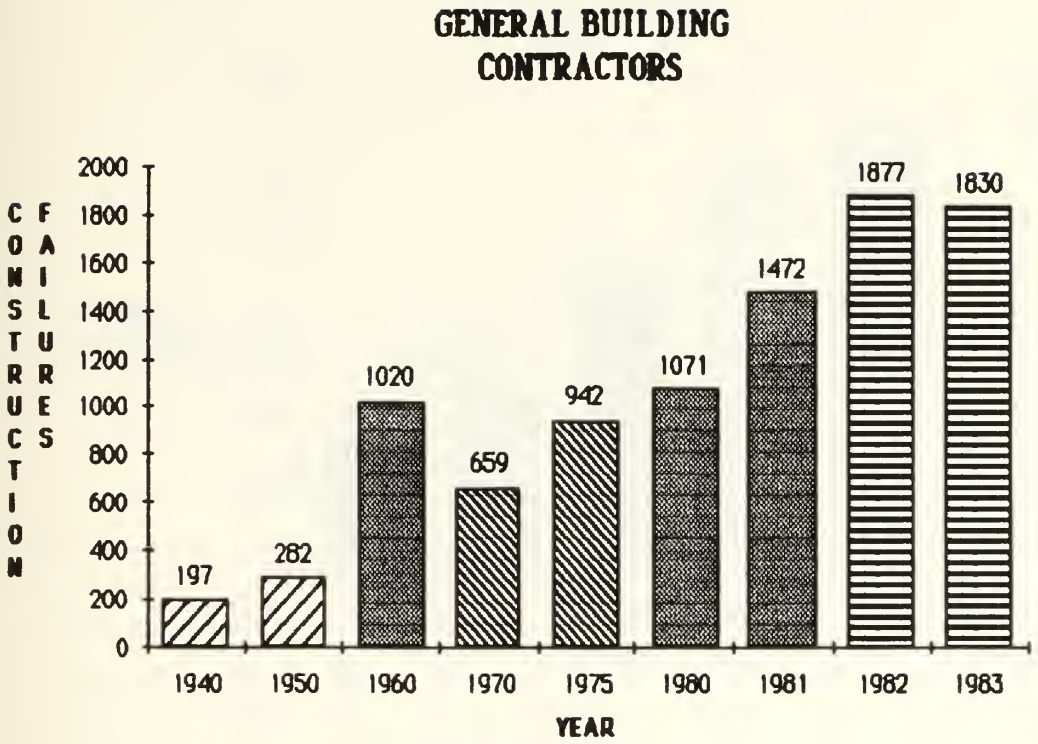
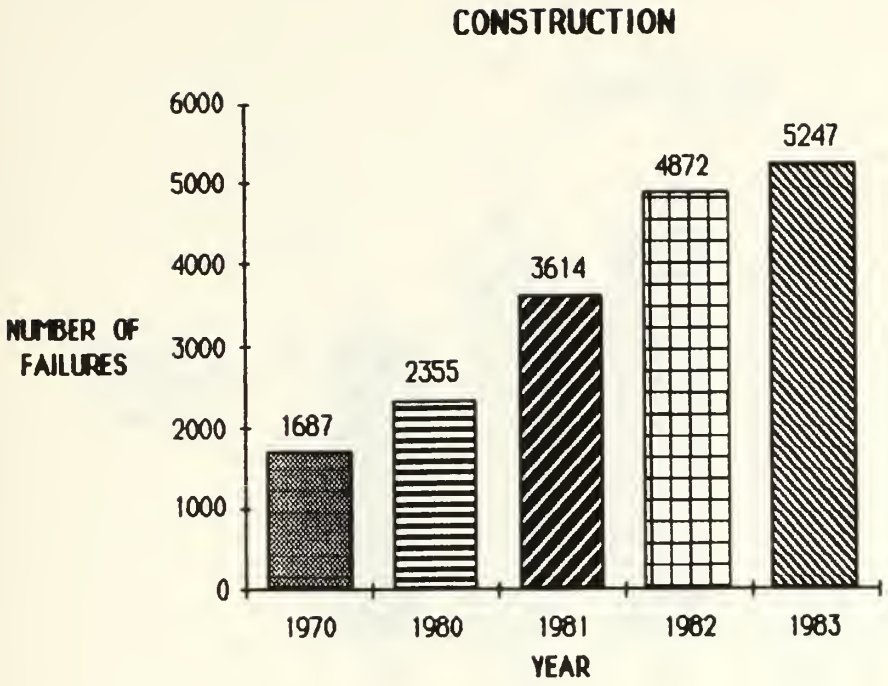

GENERAL BUILDING
CONTRACTORS
CONSTRUCTION FAILURES
2000
1800
1600
1400
1200
1000
800
600
400
200
0
197
282
1020
659
942
1071
1472
1877
1830
1940
1950
1960
1970
1975
1980
1981
1982
1983
YEAR

Fig-4


CONSTRUCTION
NUMBER OF FAILURES
6000
5000
4000
3000
2000
1000
0
1687
2355
3614
4872
5247
1970
1980
1981
1982
1983
YEAR

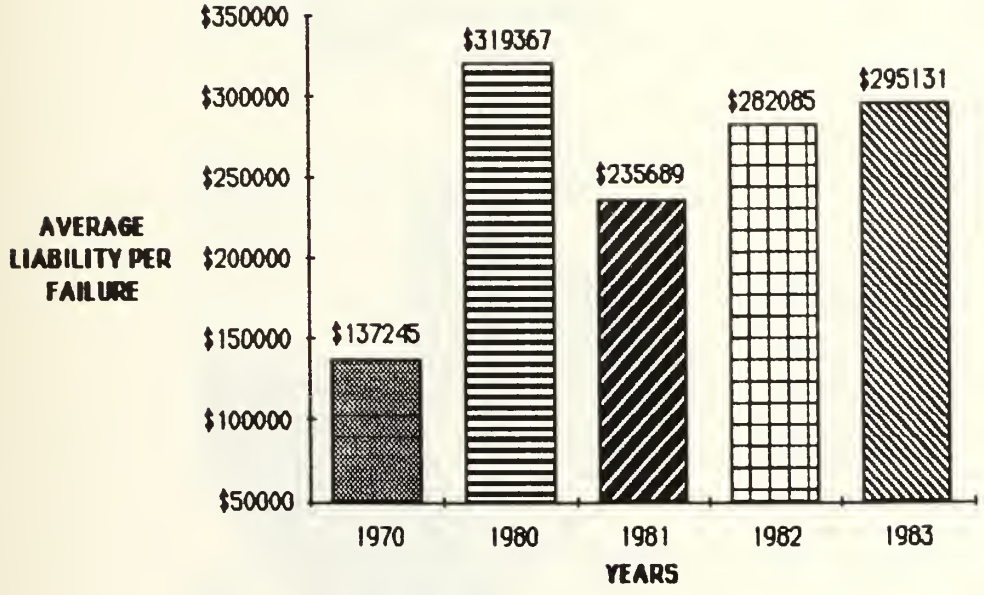
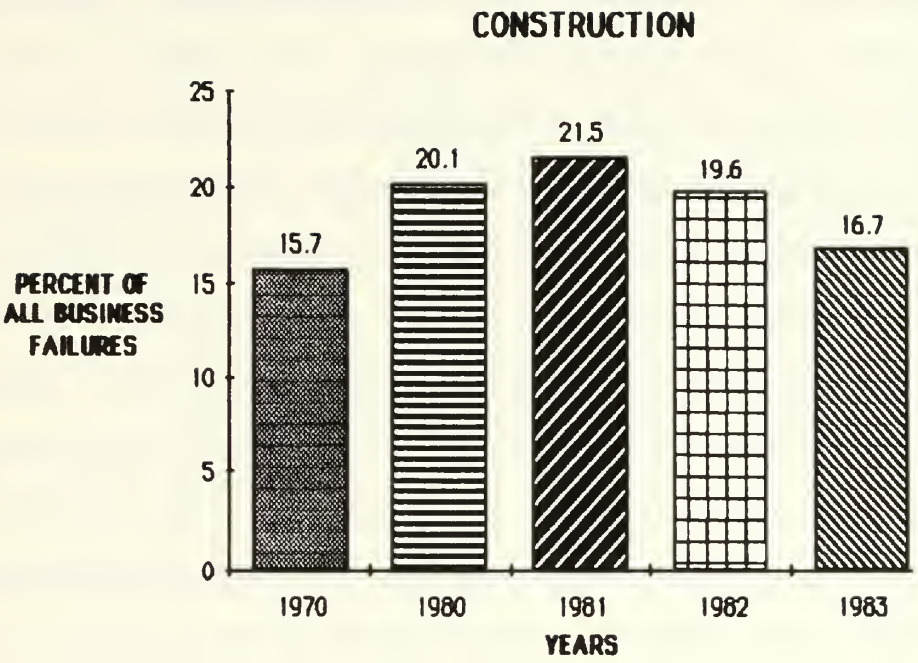

AVERAGE LIABILITY PER FAILURE
$350000
$300000
$250000
$200000
$150000
$100000
$50000
$137245
$319367
$235689
$282085
$295131
1970
1980
1981
1982
1983
YEARS

Fig-5


CONSTRUCTION
PERCENT OF ALL BUSINESS FAILURES
25
20
15
10
5
0
15.7
20.1
21.5
19.6
16.7
1970
1980
1981
1982
1983
YEARS

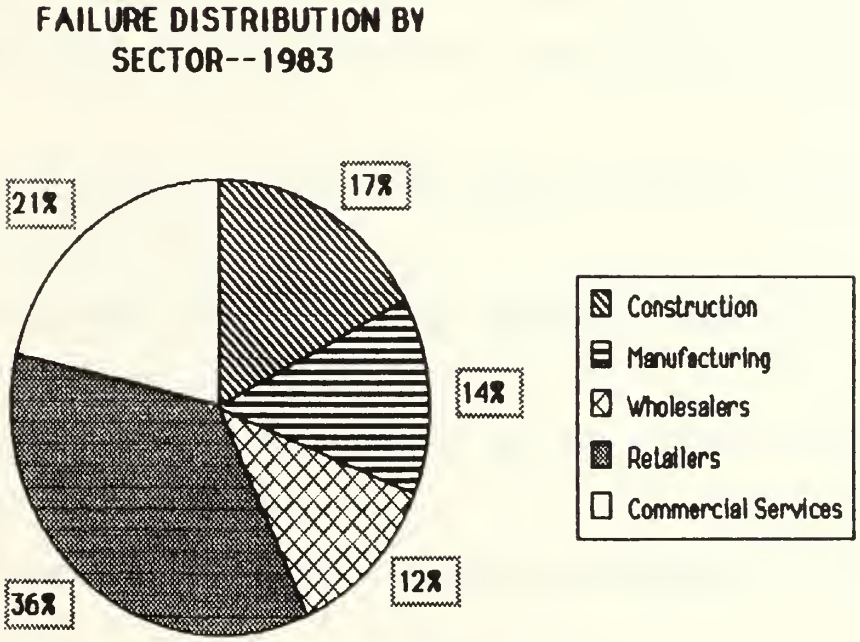

FAILURE DISTRIBUTION BY SECTOR--1983
21%
17%
14%
12%
36%
Construction
Manufacturing
Wholesalers
Retailers
Commercial Services

Fig-6

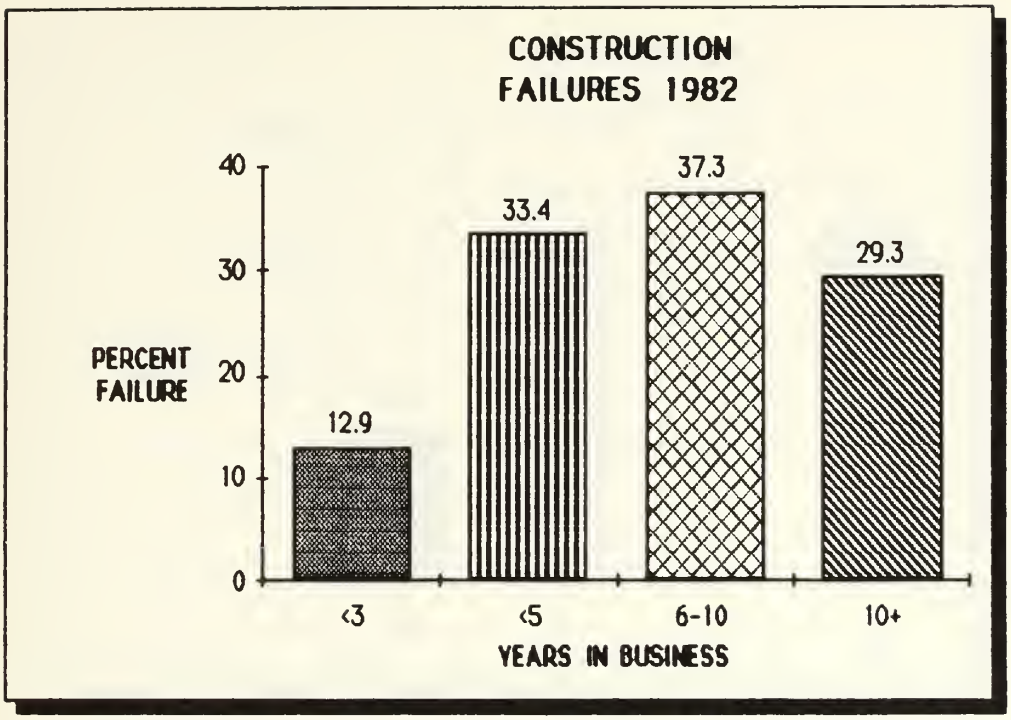
percentage the construction industry contributes to the overall failure picture. During the time frame of 1980-1983 it is noted that construction accounted for approximately 19.5% of the failures, nearly one fifth. The failures distribution by sector for the year 1983 have been included in the figure to give a general indication of how the other industries compared to the construction industry. This information is shown in the form of a Pie Chart which is also illustrated in Figure 6. **Figures 7 and 8** show identical information relating the percent failure to the number of years in business for the years 1982 and 1983 respectively. The statistic of particular note, is that the percent failure is approximately divided equally among the three age groups of: less than 5 years, between 6 and 10 years, and 10 or more years. It was originally thought that companies who had been in business for 10 years or more would contribute far less to the percent failure than the ones who had no track record. This would stem from the fact that the more seasoned companies would have:

a) learned and acquired the knowledge of how to "weather the storm" during the down times,

b) have a deep rooted track record which would help in obtaining financial backing.

c) have both the managerial expertise and the technical backing required for long term success.

However, recent statistics seem to disprove this "experience" theory.


CONSTRUCTION
FAILURES 1982
PERCENT
FAILURE
40
30
20
10
0
12.9
33.4
37.3
29.3
<3
<5
6-10
10+
YEARS IN BUSINESS

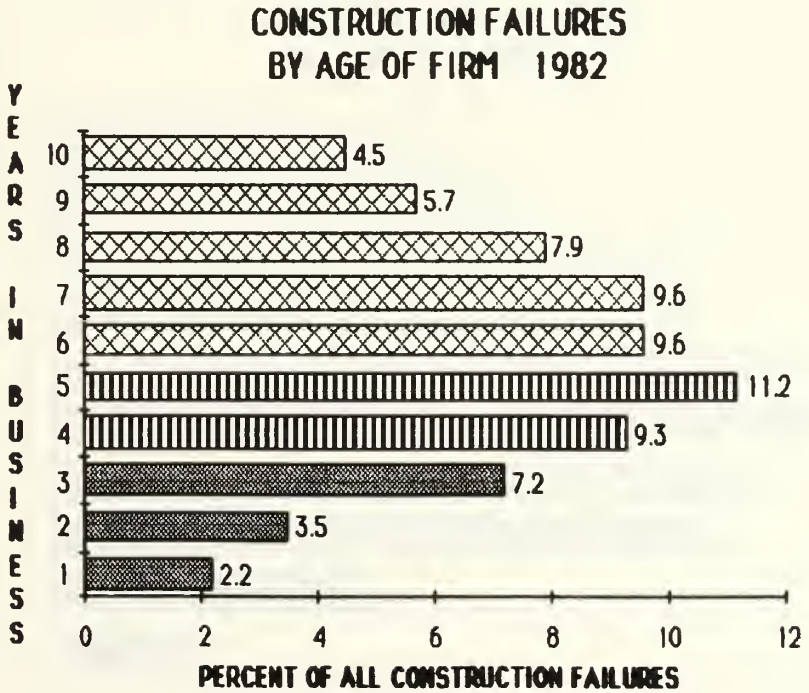
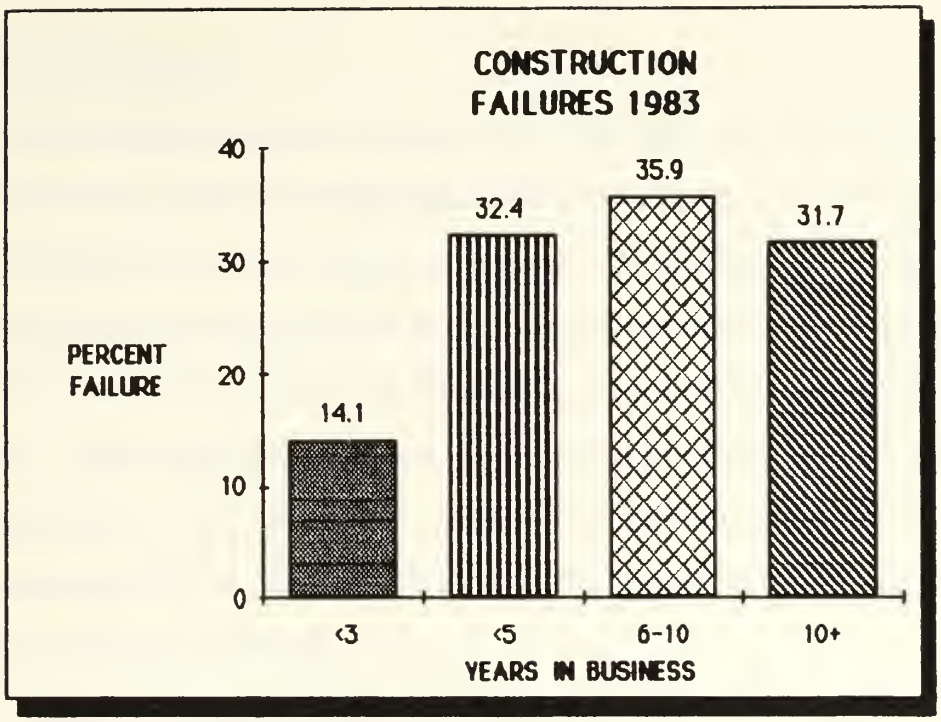

CONSTRUCTION FAILURES
BY AGE OF FIRM 1982
YEARS IN BUSINESS
10
9
8
7
6
5
4
3
2
1
4.5
5.7
7.9
9.6
9.6
11.2
9.3
7.2
3.5
2.2
0
2
4
6
8
10
12
PERCENT OF ALL CONSTRUCTION FAILURES

Fig-7


CONSTRUCTION
FAILURES 1983
PERCENT
FAILURE
40
30
20
10
0
14.1
32.4
35.9
31.7
<3
<5
6-10
10+
YEARS IN BUSINESS

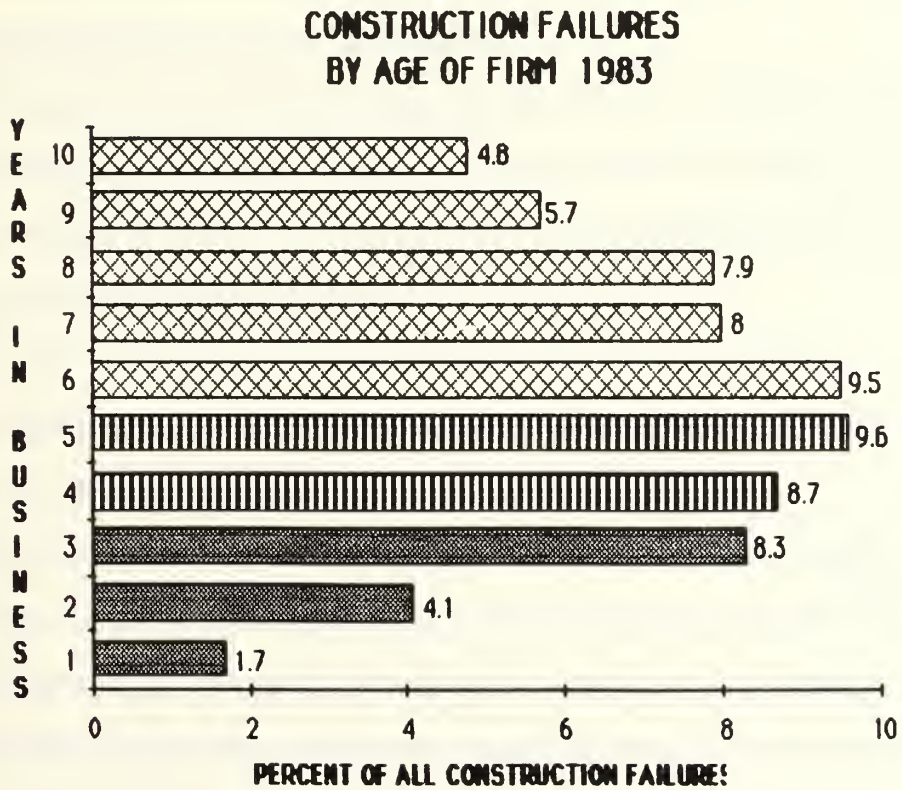

CONSTRUCTION FAILURES
BY AGE OF FIRM 1983
YEARS IN BUSINESS
10
9
8
7
6
5
4
3
2
1
4.8
5.7
7.9
8
9.5
9.6
8.7
8.3
4.1
1.7
0
2
4
6
8
10
PERCENT OF ALL CONSTRUCTION FAILURES

Fig-8

Problem Areas

While the experienced contractor has had the time to cultivate those areas that only time can aid, those with fewer years of service and less experience are not quite so lucky. Regretfully, the surety companies have found that there are a great number of factors that can bring about the eventual failure of a construction firm, but the primary cause appears to be poor management. While poor management in itself is a broad category, it can include the following:

1) overextension; or taking on jobs that the organization is unable to successfully complete
2) inadequate supervision consisting of incorrectly trained or inexperienced staff in positions of authority,
3) being unable to keep operations and procedures efficient as well as keeping up with field advances,
4) inability to maintain correct and efficient cost and accounting records, a contractor must know the financial condition of the company at all times, and be able to find, understand and use past and current job cost data,
5) failure to arrange for proper financing as this requires forethought, and the ability to anticipate possible or conceivable problems and be financially prepared to face them and,
6) unwisely entering into hazardous ventures. Evidence suggests that success is more probable if the contractor stays within a chosen field of expertise and deals with those the company has worked with before and whom they know they can indeed work with.

Other problems for the contractor include:

a) the submission of erroneous bids due to the incorrect estimating of functions (both mechanical and judgmental)

b) failure to anticipate those contingencies of unforeseen but usual costs that may have been unexpected or indeterminable

c) failure to allow for the uncontrollable; inflation, material shortages, wage or price controls

d) leaving an inadequate allowance for overhead and profit

e) other personal problems; marital difficulties, insufficient insurance coverage for employee protection, or for the insurance of property or equipment, and the lack of employee loyalty. (This can really be a big problem for the young contractor when just starting out).

All these, and more, can lead to operations "getting out of hand" and the contractor losing control. How does this happen ? The situations are as varied as the number of cases, but one general scenario is as follows. A long-time construction worker leaves a long-established firm to start his own business. This new contractor knows the building side of things and has untold amounts of experience, but has had no experience with the managerial side of running a business. When things start to go awry, he is not able to pick up on the danger signs, and slowly but surely, "goes under". The same scenario is also true when the young college graduate gets out of school and starts a business with a college buddy. Both have adequate "book knowledge", and the managerial aspects may proceed fairly easily, but neither have the job site experience/knowledge that is required of a good construction contractor. Because of the number of problems

encountered in integrating the two areas of expertise, many companies end up failing, many, only after they have incurred great financial loss, and damaged their business reputations.

The failure of a construction firm has different meanings to the varied groups with whom the contractor is involved. To the owner of the project, a contractor's failure means, a work stoppage on the project. To the surety, it means financial loss and added responsibility to the owner, as the surety then must assume responsibility for the project and see it to its completion. To the subcontractors and material suppliers, contractor failure means fear of receiving no pay for work already rendered, or materials supplied. There is no one in the construction field that can afford to have a contractor "go under" while on a job. It is up to a surety bondsman to see to it that this does not occur, and this is the precise purpose of underwriting or "prequalification".

Prequalification is the reviewing of a construction contractor, that is done before the issuance of the bid bond. This prequalifying investigation is particularly detailed when the bid bond is the first one being sought by the contractor. It is at this stage, that the contractor is required to supply itemized financial accounts of the company, give detailed reports of all previous projects performed, and is asked to give the goals and direction the company foresees itself taking in future years. The exact qualifications required by surety companies are discussed in greater detail as the central focus of this paper.

Do contractors mind having to meet the requirements of bonding? It seems that while going through bonding and its searching/probing

analysis contractors recognize that bonding tends to screen out unqualified contractors and encourages fundamental fairness in bidding and award procedures. It should also be noted that contractors are generally proud and protective of their ability to obtain bonds and of the bonding credit line extended to them by the sureties.

Defaulting Under Bond

Defaulting occurs when the contractor has been awarded the job, but for some reason is unable to fulfill the contract requirements. One reason may be the surety's refusal to execute the final bonds due to the excessively-low bid of the contractor. Should this happen, the surety and contractor may be called upon to respond to the bid bond penalty. In Washington, the maximum bid bond penalty is 5% as compared to the Federal Government which has established 20% as its bid bond penalty. Usually the penalty is for the difference between the contractor's bid and the next qualified low bidder, but in no case shall it exceed the previously mentioned percentages. Defaults of this nature have been extremely rare and only occur when the job has been grossly underestimated. Should the contractor be able to prove that a honest clerical or mathematical error existed, the courts have held that both bid and bid bond may be canceled.

One example of how such a default might occur when under bond would be as follows. A contractor has a maximum bonding limit of one million dollars assessed for a bid bond. The company then proceeds to bid on a project that comes in at 1.3 million dollars. With the bonding limit already set at one million dollars, the surety may justifiably refuse to issue the performance and payment bonds that

would be necessary for assumption of the bid contract. The surety may prefer to accept and pay the bid bond penalty rather than run the risk of allowing the contractor to take the project and then fail. Economically the bond penalty is usually far more affordable. of course, the contractor may also be successful in obtaining an extension of the bonding limit.

Experience has shown that some contractors who have made honest mistakes hold onto the belief that they are honor bound and have no alternative but to go ahead with the job. Under such circumstances, the surety should immediately suggest legal counsel. The unnecessary performance of any job which is known to have a built-in loss factor can only lead to serious financial trouble and will preclude the contractor from bidding on future jobs which have the potential of making a profit.

It must be remembered that when a surety authorizes a bid bond, the bondsman has taken into account all the necessary underwriting factors as though the contractor were the low bidder and the final bonds now stand approved.

Default Under the Performance Bond

When a contractor experiences difficulty on the job but is still capable of performing, the surety may very well offer financial support and/or any other type of guidance that would help the contractor complete the job. If conditions are such that there is no possible way for a contractor to meet agreed upon obligations, default must result. At this point, the surety has four alternatives which it may pursue under its performance bond. It should be noted, that these alternatives are based on the principal that, "the Surety

cannot be compelled to complete the work, for the performance bond does not obligate itself to "perform" the contractor's obligation, but rather requires it to "indemnify" the owner against loss resulting from the contractor's failure to perform"(12).

These four alternatives include (13):

1) "Surety decides to obtain bids and award the job to another contractor for its completion. In this event, if the cost to complete the project exceeds the contract price, the bond will absorb the excess.

2) Surety requests the owner to advertise or call for bids and to award the work to the lowest qualified bidder. The resulting excess cost,if any, is the price to complete and the surety reimburses the owner up to the limit of its bond, which then will represent the loss to the surety. Most frequently, sureties have exercised this option.

3) Surety decides to have the defaulting contractor complete the job under the control of its surety claims department by financing and controlling the funds. This method can be subject to unanticipated costs as evidenced by the claims experience of many surety companies, since the maximum loss will be based on the surety's final cost to complete and not the penalty of the bond. Thus, for example, in a given case, it is possible for a million dollar contract to cost the surety twice that amount, or whatever the final costs may be.

4) The decision of the surety to forfeit the penalty of the bond, rather than permit a loss that would exceed its penalty. Although one of the factors to be recognized is that a contract bond does not reduce itself by any payment made between the contractor and the owner. The surety is always liable for the full amount of the bond, except in

some cases of suretyship when it is stipulated otherwise. The election is an infrequent one".

Default Under the Payment Bond

Experience has shown that sureties suffer more losses on payment bonds than they do on performance bonds since contractors frequently finish the job but have insufficient funds to pay off the remaining bills. The surety then has the direct obligation to pay off these bills up to the amount of the bond, for which it is liable under the federal and state bond laws.

There are areas of consideration that make up prequalification guidelines, these come under consideration in underwriting, for during the underwriting of contract bonds, the surety will be guided by the ***Three C's of Credit,*** namely character, capacity and capital.

Character is of vital importance to both contractors and sureties, for it is a measure of contractors willingness to stand behind their obligations. Their reputation in the community must reflect qualities of honesty and integrity, as well as being upstanding citizens possessing both good morals and living habits.

The **Capacity** of the contractor frequently comes up as being the most difficult of the three C's for the surety to measure. Capacity pertains not only to possessing the necessary skill and ability to carry out ones obligation, but includes experience as well as the education and technical knowledge to enable their companies to carry their contracts to profitable completion in an economical manner. While the surety may be able to establish the known character of a contractor and through a thorough analysis, assess the company's financial standing, there is no fallible test which will guarantee to

the surety what line of credit the bondsman may safely extend to the contractor. The underwriter's only reference may be in the contractor's known record of performance and therefore may rely heavily on personal judgement for a final decision.

The third "C" is **Capital** which is of primary importance in determining whether the financial condition of the contractor warrants the justification of approval for the risk. There are times when a prospective contractor may not have sufficient financial backing to attract the interest of the surety without providing additional support. The contractor may overcome this by personally indemnifying. By this, the contractor, or perhaps a third party, sign an agreement by which they become bound to reimburse the surety should it have to pay the obligee due to a default by the contractor. When sureties were asked to rank the three C's of credit in order of importance, character and capacity were overwhelming favorites over capital. As stated by Mr. Albert Remmen, the equation for the essentials of credit are: Character + Capacity + Capital = Safety in the Credit Limit. Whereas, under minus factors such as Capital + Capacity - Character, it becomes an inferior risk. Remmen went on to say that, "Experience has shown that capacity and capital mean little when there is a record of dishonesty or when character is doubtful or strongly inferior"(14).

One other area of credit which sureties have pointed out as becoming increasingly important, is what they refer to as the fourth "C", that of **Changing Economic Conditions**. Every job that is undertaken by a contractor is subject to the fluctuations of the economic market which in turn may have a significant impact on all job costs. The

sureties have pointed out that particular concerns lie in the areas of :

a) higher material prices

b) higher interest rates

c) unstable labor conditions and

d) excessive competition (this requires contractors to use a very "fine pencil" in arriving at their final bids).

It is only by closely examining the 4 C's that the surety will be in a position to safely and adequately assess whether the contractor has the right proportions of each key ingredient needed to insure project completion and continued corporate success.

CHAPTER II :

Prequalification and Failure Warning Signs

This chapter draws heavily on the information referenced by the following numbers in the bibliography. (*1, *10, *16, *17, & *19)

Several times within the body of this paper, the topic of prequalification has been mentioned. In this section, prequalification will be discussed more fully. When contractors apply for their first bid bonds, the surety will begin an intensive "prequalification review". It is in this "review", that contractors' records and business patterns are examined closely to determine whether they are sufficiently competent to be bonded.

What records are going to be required for the "prequalification review"? What will the reviewing agent be watching for ? And why are these documents so important ? The answers to these questions will be sought.

The Business Record

One of the very first things a surety agent is going to ask for when trying to determine ones "bondability" is ones business record. The business record gives the agent a large amount of key information. This information includes the following:

A) The name of the company will be given and information indicating whether it is a proprietorship, partnership or corporation. It is also by name, that a company's reputation and how well it is known, can be checked.

B) This record, gives the class of the contractor (this is not a social class evaluation, but considers the kinds of jobs they have undertaken). It is at this point that the agent takes into consideration previous work undertaken, the necessary experience required for a successful operation, and the adequacy of the capital investment.(The agent also examines the adequacy of the company's pre-job evaluation skills, assesses the operation size, efficiency, management capabilities, how they had done in bidding and the state of their finances). Success depends on that delicate balance between experience and management and these attributes must be ascertained). It is at this stage of the process, that company age is put under extreme scrutiny. While most surety companies avoid dealing with companies with less than 3 to 5 years of experience, those with even 6 to 10 years have exhibited problems in being able to "stay afloat". Thus, the evaluating agent will examine the records carefully checking all those areas known to have brought about trouble for less established companies.

C) Location is considered carefully. They look at where the office and or yard are, and how they are operated. Is it operated efficiently ? Is it under staffed/over staffed ? Are the expenses used to run the operation, appropriate for the operation ? Are things done a bit more extravagantly than would be absolutely necessary ?

D) Continuity in same line, (versus diversification) is preferred. The agent makes certain that all periods of time since the companies inception are accounted for. A time gap could indicate a point of business failure. This is information that the surety would rightfully need to know.One piece of information that would be vital for the

surety to know, would be if any other bonding company had ever been forced to pay on a bond placed on this firm before. Bonding is supposed to be a no loss business and the bonding agent's job is to make sure that it remains that way. Bonding a company that has failed to fulfill its contracted obligations elsewhere would be taking a very great risk.

When considering a company's management experience, the bonding agent will be looking at a variety of factors. If the company is run via partnership, the agent will look at the character and experience of all partners. Do they complement one another ? Do they bring to the partnership individual strengths that give unity to the company ? This individual consideration of management composition is not simply confined to partnerships but also applies to corporations. Another consideration, made in looking at management, is the stability of the company's "management hierarchy". Rarely, for a successful contracting firm , should there be changes in the "upper" management realms. If such a change does occur there is usually a strong reason. This hierarchical change may indicate that all is not well within the company and may warn that stability might very soon become a perilous issue.

The Personal Record

Aside from the business record, an evaluating bonding agent is going to require the personal records of those making up the principals of the contracting firm. The personal record considers :

a) the employee's prior success as an employee

b) what kind of job record they have brought with them

c) the employees experience within the field

d) have they ever been released from a job and for what reason(s).

Having lost a job due to independability or chemical abuse, may give the evaluating agent a negative picture. It is important that the positives and negatives are known so that the agent is able to make an informed evaluation. The company bonded is to be backed by the surety's reputation. They must make sure that the company they guarantee, is represented by dependable and honorable business personnel. Another item considered in the personal record, is whether these principals have confined their business activity to a single area of "the business". Diversity may provide a great deal of knowledge but concentrated knowledge and experience in the one area in which they are trying to be bonded is going to weigh more in their favor. Experience gives them an edge in the "success equation" that was discussed earlier. If one has outside income, or "connections", it should not be mentioned or listed unless the money is to be made readily available. As previously mentioned, the personal record needs, to include any previous failures that may have been experienced by the contractor. Some contractors learn by their mistakes, but the true test is in the frequency or pattern of such mistakes. While not easy to discuss, it too must come to the reviewing agent's attention.

Age is also considered in the personal record. Advanced age in management may indicate a conservative management. It may also indicate an inability to recover losses or meet the demands that might occur with any sizable overexpansion program. The conservative nature of older management does not allow for risk taking. On the other hand, management run by young men may lack the maturity, experience or judgement that would be needed to see them

through critical situations. The young tend to be more ambitious and aggressive and they are more likely to incorporate new construction methods into their operations. The best mix would be to team the two groups. Such a combination gives maturity and control with the desire to grow and the willingness to try the new. The evaluating agent will probably be most concerned with the tendency of the young to overextend. This may place the younger managers at a greater disadvantage in the evaluation procedure. Family businesses, especially those being run by the second and third generations,are more likely to suffer from financial trouble and poor management. The idea that one has been handed position and success, has not traditionally produced successful managerial material. Under this supposition, family businesses, especially those run by second and third generations, are likely to undergo greater scrutiny.

The Trade Payment Record

A third record of consideration is termed the trade payment record. This is a necessary consideration for the bonding evaluation. While the business and personal records give an overview of the contractors' abilities to manage their businesses and their lives, it is the payment record that records how they manage their accounts. The history of a business's current trade payments can either readily confirm the favorable factors developed up to that point or they can point to highly questionable or potentially unfavorable conditions. The evidence of an unreasonably slow pay record or a developing trend in that direction are some of the strongest danger signals the evaluating agent may observe. The big question for the evaluator becomes, if contractors have the character factors and financial responsibility

has placed them in a position of positive consideration, then why are they running behind in their payments ? The evaluator will have to come to a satisfactory conclusion before the company can come up for full bond consideration.

Prior Experience must be looked into very carefully. Considered will be the nature of previous projects, the size of those projects, the number of years of experience acquired, position held during those projects, the age and education of both the contractor and the supervisory staff. These factors are considered the essential tools for an evaluators judgement of a contractors capacity. The experience a contractor has gained in the service of other contractors and the length of that service can have an effect on the stature of each and every member of the contractor's management team. Past experience can be a favorable factor when gained in the service of a firm known for its organizational strength and success. This is the kind of company a person bent on success is going to seek out. By the same token experiences in companies that may have been weak, and whose business practices were questionable, may saddle contractors with lessons they are unable or unwilling to lay aside. The evaluator will have to discern whether the applying contractors were involved in the practices that brought those previous companies into unfavorable circumstances.

Inadequate experience in the final decision making process is the greatest source of failure among "new" contractors. The question becomes, how can the manager who lacks experience, direct the superintendent, the estimator or other support employees who may also be inexperienced ? It is because of the lack of experience and the

potential havoc it can cause, that the prior experience record is examined with such care. Successful contract bonding deals with an underwriters ability to determine whether a contractor has the necessary skills and organization to perform the job.

There are four questions an evaluating agent asks when considering the qualities of a contractors organization, they are:

1) Is the organization overstaffed ?

2) Is the organization understaffed ?

3) Is the organization well-balanced ?

4) Is the organization one of succeeding generations ?

Question number one, tries to determine whether there may be too many employees for the jobs at hand. This occurs quite often in new ventures because of overriding enthusiasm or optimism. They have had no offsetting direct experience to guide them. It also occurs in family businesses that have passed their prime but have not modified their staffs to accommodate the changes that followed.

In question number two, the evaluating agents have found that an insufficient number of key staff personnel to supervise the work properly may prove self-defeating. This often occurs when a small contractor begins to grow and either refuses, or is unable to successfully delegate responsibility, and ends up trying to make all decisions personally.

In question number three, the agent is able to see whether there is an adequate dispersal of responsibility and power. A well-balanced organization recognizes its strengths and its weaknesses and operates successfully within those bounds. Considered here are turn-over and experience among key staff. Keeping those "in the know"

in control while allowing the new to learn, opens the way for a healthy successful business operation. One thing must be maintained at all times, however, the manager must be aware of each and every detail of the job. Overall supervision is the one thing a successful contractor cannot delegate.

Number four was previously discussed in the section on personal records. To reiterate, records show that on a percentage basis the mortality rate of a business established by father and run by son is exceptionally high. It seems that the more successful the fathers are, the less prepared the sons are to take over. This makes family succession businesses a greater risk consideration.

Choosing Competent Associates

One thing a bonding agent looks at when doing a "prequalification review", is what kinds of specialized staff the contractor has chosen. By evaluating those the contractor has chosen, the agent will have one more character trait on which to evaluate. There is no substitute for the ability to choose competent associates. It is the extent of this specialized assistance that can make the organization effective or ineffective.

Since "one is judged by the associates he keeps", it would be best to examine the kinds of associates the contractor is expected to have acquired. What kinds of traits are they expected to possess to create a favorable impression on the reviewing agent ?

One of the first parties in a construction firm to come under close scrutiny is the estimator. An estimator's estimating accuracy and bidding ability are shown in the final costs of completed projects. While bids are usually reviewed and checked by the other personnel in

the contractor's firm, usually the principals, before a bid is presented, an estimator dominates the bidding program. Additional care is required when estimating jobs in which the contractor is not fully experienced. Estimators are clearly in a position to influence bidding in a damaging fashion. Estimators can be forceful, opportunistic and very convincing. Their worst fault is to encourage contractors to overexpand and to take on work beyond their experience or capacity. Since estimators have the capability of directing or focusing the future of contractors, their background, and bidding authority should receive careful examination. If the surety examiners do not like what they find, it is not uncommon for them to decline an account.

The company's superintendent should also undergo careful examination. There have been incidences wherein superintendent have passed themselves off as being specialists in a field unfamiliar to the contractor. In this position of authority the superintendent can induce the contractor to bid work that should not be bid. The bonding agent checks for such weaknesses and if there appear to be any questionable areas, or if the profitability of operations are lacking, the contractor will be advised to run a profitability check on each superintendent.

The selection of an accountant is not always easy. Only 10% of those accountants which are licensed are considered to be fully qualified in the knowledge and application of auditing in the construction business (15). It must be understood that without a qualified outside accountant, particularly a certified public accountant, the proper cost information is either open to question or

unavailable. This diminishes the accuracy of financial reporting to the surety (8).

The areas of construction and bonding require a basic understanding of contract law and detailed knowledge of construction law. Being associated with an attorney who is well-versed in construction matters is extremely beneficial. This is an association that is seen to be in the contractor's best interest. The attorney's assistance may be enlisted in matters ranging from contract confirmation and interpretation to management representation The underwriter will evaluate the attorney by reputation and by known experience in the field.

After a bond has been issued to a contractor, the surety, must carefully monitor the activities of that contractor. The bonding agent must remain alert, checking for the presence of any warning signs that might indicate contractor difficulty. If these warning signs are missed, loss may not be averted. These "warning signs" must be acknowledged and explained. The knowledge that they exist and that they need to be addressed promptly are prerequisites to terminating the problem at its source. Identifying the warning signs early is essential. It must also be recognized that different types of warning signs may exist. A general listing of these "Warning Signs" are listed below: (16)

WARNING SIGNS

1) A history of frequent loss jobs
2) Inadequate construction volume
3) Excessive volume
4) Unusually high overhead expenses

5) Slow or poor quality receivables
6) Over-investment in fixed assets
7) Participation in certain types of joint ventures
8) Investments in outside ventures
9) Entry into new lines of construction with inadequate preparation
10) Entry into new geographical areas with inadequate knowledge
11) Other Considerations

History of Frequent Loss Jobs

A history of frequent losses on jobs suggests that some difficulty has arisen in trying to operate profitably. While a frequency pattern would indicate real problems, almost every contractor has experienced at least one. Reasons for a loss job can include: (17)

1) Poor bidding
2) Inadequate field supervision
3) Unanticipated labor strikes
4) Cost escalations
5) Sluggish, material deliveries
6) Unanticipated weather conditions
7) Subcontractor performance failures
8) Difficult relationships with owners or architects
9) Poor management of change orders

These are not unavoidable problems however, for there are several steps a contractor can take to try to avert a loss. These include: (18)

1) Including escalation clauses in contracts with owners
2) Requiring that subcontractors be bonded (a move noted earlier as denoting the presence of good business sense).

3) Making sure that the contract price is sufficient to cover contingencies. (18)

Implementation of these methods may help avoid possible financial disaster.

Inadequate Construction Volume:

Inadequate construction volume may result in total gross profits being insufficient to cover the contractor's general costs, administrative costs and other fixed costs. Inadequate volume may also motivate the contractor to submit bids with smaller margins, thereby increasing the risk of an unprofitable contract.

Excessive Volume

Excessive volume can strain a company's supervisory resources and lead to loss of control over field work. Under these conditions, profit erosion or actual losses may occur. The company's capital may be inadequate to finance the levels of work in progress and the receivables may be insufficient to support an excessive volume of work.

Unusally High Overhead Expenses

High overhead expenses concern the surety because they may cause the contractor to take on a greater volume of work than can be managed profitably.

Slow or Poor Quality Receivables:

A contractor's largest assets generally are the accounts receivable. Any indication that receivables are collected slowly or that collection is unlikely, is a <u>real</u> concern. Ways to avoid this situation might be to choose clientele with great care and make certain the contractor knows the exact source and the amount of such financing.

One should check financial information before a project is bid. Additionally, the contractor should use great care in agreeing to lien waivers. Ultimately, liens may be the only mechanism available to the contractor for collecting receivables.

Over-Investment in Fixed Assets

The contractor assessed as having too great an investment in equipment or other fixed assets, holds the potential of long-term risk. Contractors may have to face reduced working capital, possible capital loss at the disposal of these assets and the expenses that are incurred by servicing required debts.

Participation in Certain Types of Joint Ventures:

Participation in joint ventures may provide certain advantages to the contractor. In a joint venture there is someone else to share the risks, give added experience in estimating, and can remove the possibility of a potential competitor on specific projects. Partnerships may hold risks too, especially if the partner is not financially strong enough to make the necessary cash or equipment contributions to the union. Misunderstandings can arise if each individuals rights and responsibilities to the partnership are not clearly spelled out and mutually agreed upon. Without a plan and an agreed upon director or sponsor, projects may lack both control and direction. This may in turn lead to possible financial loss.

Investments in Outside Ventures:

In dealing with outside ventures, a significant portion of the company's capital or the contractors time, are committed to outside and unrelated activities. The company's available working capital is thereby reduced. Reducing cash and credit availability then strains

the contractor's ability to effectively manage the company.

New Lines of Construction with Inadequate Preparation

Joint ventures often mark the movement of a contractor from one area of expertise to a new, and possibly, more lucrative construction field. While the lure of more money is great, as a rule, the chances of the contractor finding it are extremely low. What tends to be overlooked in the desire to expand is the absence of new field expertise in the new field. They fail to consider the fact that new fields quite often require new equipment. Staff, experienced in their original line of construction, may be just as inexperienced in the new field. One example of this would be the experience of a "large and successful underground contractor who, because of a slowdown in local work, entered the high-way construction field and found that, to be competitive, he had to meet three overpowering factors:

1) a substantial capital investment in equipment
2) the need for qualified personnel
3) and an excessive demand on his time and attention

Two years later, he quickly withdrew from that field because of substantial losses. The competitive factors, the unseasoned personnel, the heavy burden of equipment costs he foresaw, if continued, would have only one result-- bankruptcy" (19). This contractor was fortunate. It is seldom that the danger signs are recognized in time to prevent permanent loss. Another consideration is that requirements for field specialties are not dependable. They fluctuate because of changes that occur in construction methods or in the manner jobs are awarded. The owner's policy for awarding jobs may follow certain guidelines for an extended period of time and then

may be abruptly changed, redefined and sometimes phased out. Such policies may include, jobs set aside for small business or combining jobs which would adversely affect the smaller contractor. This may make it financially impossible for the contractor to participate under the new rules. Because of the precarious situations a change of field can bring about, an underwriter will use great care in examining all aspects the change may effect. Contractors wishing to expand into new fields are urged to start slowly, giving themselves a chance to gain expertise. Quite often they may find that joining with a specialist in the new field can prove beneficial and more financially satisfying.

New Geographical Area:

Another problem area, is that of entering new geographical areas with inadequate knowledge . The entry of a contractor into new geographical areas, whether domestic or foreign, without adequate preparation can result in critical job losses. Damages may be incurred by being unfamiliar with local labor personnel and practices, by not knowing about the site or material availability, not having experience with the indigenous soil conditions, etc. Such new contractors may also encounter resistance within the community to their presence or they may overlook the problems associated with moving job operations away from the home base. In geographical relocation, the need for new equipment and trained supervisory personnel must be acknowledged and implemented. If this is not carefully considered, the contractor may be forced to make inadequate equipment "do" and may have to use unqualified personnel.

Other Considerations:

The underwriter will also examine a company's payment practices. This is done through outside sources such as credit agencies and credit reports. A prompt payment pattern is a big plus for the company under review. It establishes the contractor's responsibility and managerial capabilities.

Another warning sign is that of taking on and trying to handle too many jobs. Quite often, a contractor can "get in over his head" and get involved in so many projects that none receive the careful attention they require. When the taking on of a new job is considered, questions of who is to run the job and whether there is sufficient qualified staff to handle the project effectively must be carefully considered. Underwriters are very watchful when contractors start "racking up" jobs. They may even deny a bond request if they feel a contractor is "spreading himself too thin".

Not all who experience failure fall into any or all of these traps. It can not be stressed enough, however, that extreme forethought and care must be used when functioning within the construction/ contracting world.

CHAPTER III :
RESEARCH METHODOLOGY

The purpose of this paper is to identify the means/methods used by the surety industry to determine the financial stability of construction firms. The paper took a look at how sureties differ in their approaches when dealing with a "seasoned" contractor, as opposed to the "young" contractor (one in business less than 3 to 5 years). The hypothesis was, that young contractors have not been in business long enough to develop a solid track record by which to be judged, and would thereby be examined more closely in the areas of financial status and managerial expertise.

After some preliminary research in the library, it became apparent that this information was not readily available on the bookshelves. Most of the information that was found, dealt primarily with "what bonding is", and the functions of the parties involved in the bond (the contractor,the owner (as obligee), and the surety). They also dealt with how a contractor's stability is measured through the eyes of the surety, without differentiating between the established and young contractors. This was further substantiated when listening to a surety broker who emphasized that the surety industry is by no means an exact science, for it is to some degree, subject to the personal preferences and idiosyncrasies of each individual underwriter.

With the above information it became apparent that the required data would best be collected directly from the field. Thus, the primary means of data collection was through surveys in the form of

questionnaires. Prior to forwarding the questionnaire, a draft was examined by a surety broker to ensure completeness and accuracy. Refinements were made and incorporated. The questionnaire contained 18 questions requesting information from bonding companies on the means/methods used by them in determining the financial stability of a construction firm. The questions were either short answer or multiple choice in nature. Five of the 18 questions asked the underwriters to prioritize the choices given, including any that they may have added, in order to determine if any similarities existed in those particular areas. The nature of the questions allowed the following areas to be examined:

a) Considerations when issuing a bond
b) Bonding limits and bid results
c) Keeping in touch during construction
d) Warning signs
e) Reasons for failures

A copy of the questionnaire may be found in Appendix D.

In order to enhance the number of replies, the surety broker provided the researcher with a letter of introduction, briefly stating the purpose of the questionnaire and soliciting their participation. It was believed that the sureties would be more inclined to participate in the survey if a sense of rapport could be developed.

A total of twenty-five questionnaires were sent out to each of the companies listed on "The Surety Underwriters Association of Seattle--1985 membership roster. Of these twenty-five companies, four corporations chose not to participate in the study. One agent

said "no", stating that he personally was uninterested in participating. One company declined because they did not feel they could benefit in any way by participating, and the third and fourth declined on the basis of the fact that their firms were "specialty Surety Operations," dealing almost completely in cases with bonds which were unacceptable to the conventional commercial market. Therefore, when cases were placed with them, their approach to putting cases together so that they were writable, were entirely different than surety theory in the industry recommended". This reduced the total of possible returns to 21. The initial return count was 9, representing a 43 % response rate. Approximately 3 weeks after the surveys were initially sent out, calls were placed to those corporations who had not yet responded. These calls were made to ascertain if the surveys had indeed been received. Additionally, the purpose of the research study could be more fully explained with obtaining a sense of each surety's willingness to participate in the study. Some valuable information was exchanged through these calls. Two sureties indicated that they had not received the questionnaire and that they would be interested in participating in the survey if one could be provided. The questionnaire was sent to both these sureties and their responses were received. In addition, four underwriters stated that they had not yet finished filling out the survey but would try to finish within the next couple of days. The week following the calls saw an additional 6 responses. This brought the total number of responses to 15 which represents a 71% response rate. It was also at

this time that two of the corporations previously mentioned, acknowledged that they would not be participating.

Means used to help induce participation included:

A) The assurance of anonymity to the respondents

B) The use of multiple choice and short answer type questions to make answering easier.

C) Sureties were provided with self addressed stamped envelopes , making returns more convenient.

The results of these 15 questionnaires were then analyzed to try and determine some field consistencies in evaluating styles and requirements. Later, telephone interviews were set up to try and focus in on those areas that truly presented themselves as being of greatest importance. These six telephone interviews followed pretty much the format as did the questionnaire. Since information is not easily obtained through mailed questionnaires, the phone interviews were used to expound on the issues which presented themselves through the questionnaire and to discuss any questions which were raised due to the responses received. The information was then analyzed to establish the grounds for their supportive philosophies. The telephone conversations lasted on an average of about 25 minutes with a range of 10 minutes to 60 minutes.

One of the questions in the interview dealt with the methods used in establishing the "bonding capacities" for contractors. It was interesting to note that one of the responses inquired, "Do you have two years to sit and listen", "three if you have any questions".

Responses like these emphasized that only through personal interviews would it be possible to collect information on all the necessary ingredients on which the surety industry functions. The six personal interviews provided additional information in supporting the responses already received through the mailed questionnaire. In addition, new areas were discussed (e.g., the loss ratio, accounting techniques, stricter underwriting criteria, failures for seasoned contractors, etc,) in order to round out the entire picture. The interviews were semi-informal lasting between 30 minutes and 3 hours. Though a list of questions were prepared, much of the time was spent conversing back and forth on whatever topic was under discussion. This proved most helpful in that it provided a more congenial atmosphere and allowed for the information to flow with more continuity.

The last question on the questionnaire asked whether the underwriters would mind being contacted by phone for further discussion of these matters. In every instance their replies welcomed the opportunity, others even suggested meeting in person. Needless to say, both avenues were undertaken and proved most beneficial to final development of this report.

CHAPTER IV :
RESULTS OF QUESTIONNAIRE

With a basic understanding of the prequalification process and its importance, one may look at the various constituents sureties rely on to help them determine whether a contractor possesses the proper ingredients to be classified as a "qualified risk". The information gathered here was compiled from the questionnaires which were returned by participating surety companies. The five major headings which will be examined include:

a) Considerations when issuing a bond
b) Bonding limits and bid results
c) Keeping in touch during construction
d) Warning signs
e) Failures

Each will be discussed separately and presented in the above order. (See Appendix D for a sample of the questionnaire).

I Considerations When Issuing a Bond :

This section drew its findings from the responses given for questions 1,2,3,6,8,9,12,17, &18 of the questionnaire.

There are several areas which the sureties maintain must be carefully evaluated prior to the issuance of any bond. Those of major importance are "loosely" prioritized below:

a) Financial statements of contractor
b) Contractor's current work load

c) Management expertise

d) Çontractor's expertise on this type of project

e) Dollar value of the project

f) Geographic location of project

g) Owner availability of funds

h) Contract specifications

The financial statements which the contractor is usually required to present to the surety are: a) the consolidated balance sheet, b) the consolidated income statement, c) the statement of changes in financial position, d) the statement of earnings and retained earnings, e) the schedule showing the contracts in progress, f) the schedule showing the contracts completed for year ending, and g) the schedule showing the selling, general and administrative expenses for year ending. With these statements in hand, the underwriter is able to examine the financial strength of the contractor. By reviewing the contractor's balance sheet and income statements, the line totals enable them to get a fair picture of the companies "health". Through the careful manipulation of these line totals, "key business ratios" may be ascertained.

The questionnaire contained questions on this topic of ratios. The survey asked each surety representative to prioritize the importance of various financial ratios. There are 14 such ratios that are commonly-used in the business world (6). The respondents to the survey stated that of these 14 ratios 8, to varying degrees, are viewed by the underwriters as being of *vital* financial significance.

These important ratios are as follows:

a) Working capital/work on hand

b) Current ratio

c) Net profits on net working capital

d) Net profit on sales

e) Net sales to net working capital

f) Current debt to tangible net worth

g) Gross profit to sales

h) Total debt to net worth

In addition to these ratios, perhaps the most significant financial indicator is the working capital. (The meanings of these ratios and other associated terms have been defined and may be found in the glossary). The relative importance of these financial ratios is illustrated in **Figure 9.** The surety representatives were asked to rank the above ratios under the following four main headings:

1) very important

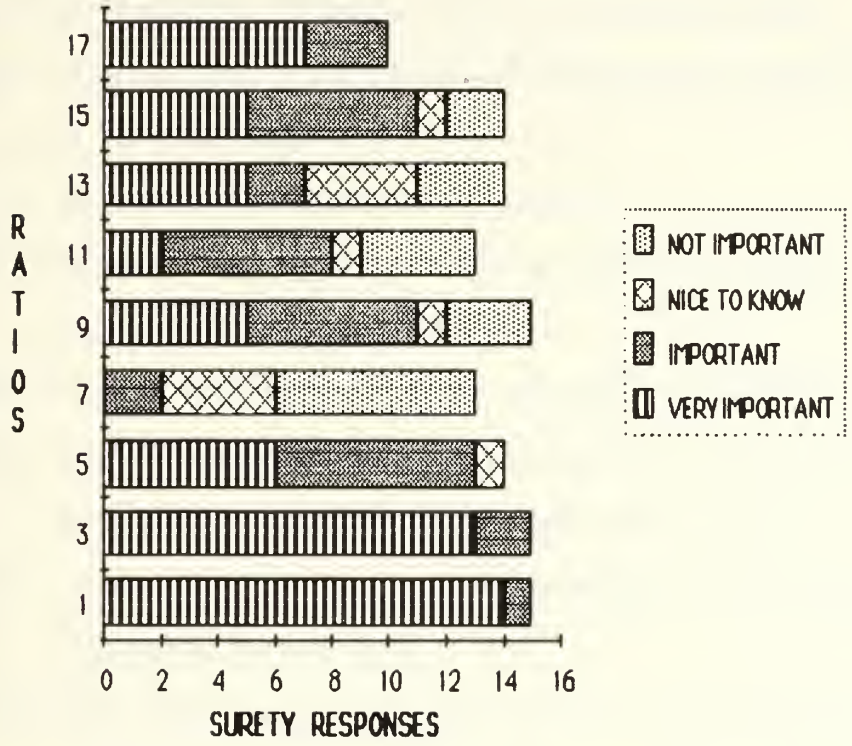
2) important

3) nice to know

4) not important/not used.

In viewing the graph, it is evident that the two most widely used "ratios" are the working capital/ work on hand and the current ratio. The "working capital," though not a ratio, in and of itself relates information about responsibility and compatibility. All the sureties use it in varying degrees to help them arrive at the "bonding capacity" for their client contractors.

RATIOS/FINANCIAL DATA USED IN EVALUATING CONTRACTORS



1= Working Capital
3= Working Capital/ Work on Hand
5= Current Ratio
7= Net Profits on Net Working Capital
9= Net Profits on Net Sales
11= Net Sales to Net Working Capital
13= Current Debt to Tangible Net Worth
15= Gross Profit to Sales
17= Other: Total Debt to Net Worth (4A, 2B)
Interest Bearing Debt to Worth (1A, 1B)
Net Worth to Work on Hand (2A)

Fig-9

Working capital also represents the margin of protection to meet current obligations and future commitments. Its sufficiency should be such that it will finance the undertakings of a contractor and meet those risks that are inherent to the business without financial adversity. In essence, it should enable the contractor: (20)

(a) to pay promptly the current obligations and to take advantage of cash discounts

(b) to provide for needed capital outlays

(c) to permit the continuance of the business during any period of inactivity or depression

(d) to meet such losses that may arise during contracts

(e) to provide for emergencies, such as strikes and other labor problems or because of floods and fire, or the like

(f) to absorb losses that may occur because of the owner's or subcontractor's failure

Other ratios which were considered to be of importance were those containing the term net worth. This is another indicator which the sureties have attempted to use as a guideline in helping set bonding limits.

With an understanding of which ratios the sureties consider to be of value, the next step would be to "get a handle on" the value of each ratio so that a proper perspective may be obtained. The two most commonly-used publications for this purpose are the Dun and Bradstreet Journal entitled "Key Business Ratios", and the "r m a" (Robert Morris Associates) publication entitled "Annual Statement Studies". Each of these publications identify the line of business by its SIC (standard industrial classification number). Those pertaining

to the general building contractors have SIC numbers of 1541 and 1542. Since it would not be realistic to give a single value for each ratio, due to the diversity within the construction industry, or for any other industry for that matter, both publications have three listings associated with each ratio. These are, the upper quartile, the median, and the lower quartile. The upper quartile consists of that number above which 25% of the ratios have a higher value, while the lower quartile consists of that number below which 25% of the ratios have a lower value. The median range consists of 50% of those ratio values that fall between the upper and lower quartile values. To gain a deeper understanding of ratio analysis, those ratios used by the sureties have been cross-referenced with those ratios outlined in the Dun and Bradstreet Journal. (See Tables 4-12 in Appendix A). While all sureties indicated which ratios were used during the prequalification period, only a few indicated their maximum/minimum value. The values they set were dependent on the ratios, they wanted to see coming from the contractor's financial statements. One ratio which received several responses was the current ratio. The sureties varied in their preferences as values ranged from 1.2 to 2.0, with a majority "hovering" in and around 1.5. Those who responded at the "low end" made it very clear that the "liquidity" of the company was the main issue at hand. (Ratio analysis will be discussed in more detail in the personal interview section of this report).

The sureties were asked to prioritize the information which they felt was of most value in assessing the contractor's stability. Their responses are shown in **Table 2**. Two of the sureties indicated that

RANKING OF INFORMATION OF MOST VALUE IN ASSESSING CONTRACTOR'S STABILITY

(1 is most important, 9 is least important)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
J	-	-	A	-	1	-	-	-	-	6	-	3	2	A	-
H	8	7	L	6	8	2	6	8	5	4	4	7	4	L	1
G	7	5	L	4	6	-	5	6	4	5	6	8	4	L	7
F	2	6		8	7	4	7	7	3	9	-	2	3		8
E	6	4	E	7	5	-	8	5	7	7	-	4	2	E	6
D	3	1	Q	3	4	3	3	2	8	2	3	6	1	Q	3
C	5	8	U	5	9	-	2	3	6	3	5	9	3	U	5
B	4	3	A	2	2	3	4	4	2	8	1	1	2	L	4
A	1	2	L	1	3	1	1	1	1	1	2	5	2	L	2

SURETY RESPONDENT NUMBER

Response Codes

A= Present Financial Condition of the Company
B= Furnished Information on "Current Projects Underway"
C= Resumes of the Contractor and Key Personnel
D= Track Record of Work Successfully Completed
E= References From Owners For Whom the Contractor Has Worked
F= Rationale/Specific Information About Project Being Bid On
G= Bank Line of Credit
H= Management Perpetuation
J= Other: Fiscal Year End Statements; Quality/Desire of Mgmt. & Key People; Payment Record; References Within Industry

Table-2

all the "information" carried equal weight, i.e., none were any more critical than others but all were required to develop a firm foundation on which to judge the contractor. The remaining thirteen respondents ranked the choices with some indicating equal weight among the choices by assigning them identical values. As mentioned earlier, different sureties tend to judge contractors differently. This arises from the fact that the surety industry is not an exact science, thereby allowing individual preferences to emerge. This is clearly indicated when examining the range of values given by the sureties for the different choices. For example, for the rankings associated with the "track record of work successfully completed", two sureties listed it as being "most important" while yet another surety indicated it was the "least important" among the various choices. By averaging all responses, giving equal weight to each numeric response, an attempt was made to prioritize the information that the sureties considered in evaluating contractors. The category entitled "other", was not included in the ranking as it is comprised of a number of the varying responses. The following results were obtained and are shown in descending order of importance: (Average ranking value given in parentheses)

1) Present financial condition of the company ..... (1.769)
2) Furnished information on "current projects underway" ..... (3.154)
3) Track record of work successfully completed ..... (3.231)
4) Resumes of contractor and key personnel ..... (5.250)
5) Management perpetuation ..... (5.385)
6) Rationale about project being bid on ..... (5.500)

7) References from previous contractor clients ..... (5.545)

8) Bank line of credit ..... (5.583)

The priority ranking of the first three items is clear. The remaining 5 categories however, were very closely ranked among each other and thus their relative positions are not distinctly defined.

When contractors approach sureties, there are various documents which will be required of them. The underwriter will carefully examine these during the prequalification period. **Table 3** was constructed showing the weight given by the sureties to the various documents they require. Certain documents were found to span the entire spectrum. They ranged from having high ranks to having low ranks. This again substantiates the statement that the surety industry is by no means a precise or consistent business. As before, an attempt was made to prioritize this documentation by averaging all the responses. The results are shown below in descending order of priority:

1) CPA prepared annual financial statements ..... (1.067)

2) Status on any and all outstanding jobs ..... (2.733)

3) Line of bank credit ..... (3.670)

4) Cost records ..... (4.222)

5) Credit references ..... (4.727)

6) Credit bureau reports ..... (4.769)

7) Annual "physicals" from key personnel ..... (8.000)

The "financial aspects" and the "status on current projects underway" head the rankings as being items of greatest influence.

DOCUMENTS/INFORMATION REQUIRED OF A CONTRACTOR

(1 is most important, 9 is least important)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
H	-	-	6	-	-	-	5	2	7	2	-	3	3	X	7/8
G	3	3	3	2	2	2	2	5	5	5	1	2	2	2	2
F	-	-	-	7	-	-	-	-	-	-	-	8	-	N/A	9
E	2	6	7	5	3	-	3	4	4	-	6	6	6	4	6
D	-	5	4	6	-	-	6	-	3	4	5	4	4	4	3
C	4	4	5	4	4	3	4	3	2	3	3	5	3	3	5
B	-	2	2	3	-	-	-	-	6	-	4	7	5	5	4
A	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1

SURETY RESPONDENT NUMBER

Response Codes

A= CPA Prepared Annual Financial Statements
B= Cost Records Informations
C= Line of Bank Credit
D= Credit References
E= Credit Bureau Reports
F= Annual "Physicals" From Key Personnel
G= Status on Any and All Outstanding Jobs
H= Other: Continuity Plans
Contractor's Background questionnaire
Resumes For Key People
Annual Personnel Financial Statements
History & Future Expectations of The Firm
Indemnity Agreements
Completed Job Schedule
Business Plan
Resumes for Key

Table-3

Another item which needs to be noted is the "other" category. There are nine items comprising this category. These are listed in the order in which they appear in Table 3 . For example, respondent no. 3 ranked "continuity plans" as being the 6th most important while respondent no. 10 ranked "history & future expectations of the firm" as being the 2nd most important piece of information required. Again, this category was not ranked among the individual items due to its make-up.

The Young Contractor

The sureties were asked to identify what they felt were the "main considerations" used when evaluating the "young contractor". (The "young contractor" being one who has been in business for less than three years). The same responses to this open-ended question were repeatedly mentioned and are listed below:

a) Prior experience; construction and personal ..... (11 responses)

b) Financial strength & growth potential ..... (11 responses)

c) Management expertise/business acumen ..... (6 responses)

d) Expectations of the firm ..... (5 responses)

e) Character & cooperation of the contractor ..... (6 responses)

f) Track record and current work program ..... (5 responses)

Other factors which were indicated, but to a lesser degree, were: a) profit history of firm, b) references from past jobs, and c) the company's CPA firm. One surety simply replied, "We don't bond young contractors". Another stated that it was "essentially the same as for any other contractor. If they have been in business approximately three years and meet our underwriting criteria, we would not reject them solely because of their relative short time in business". Most

sureties seemed to follow the suit of the latter respondent, but added the stipulation that more emphasis is placed on both management ability and financial strength to make up for the track record which has not had the time to fully mature. One surety stated that , "the same priorities are used, but we look harder at management ability because most of the other items have not had a chance to develop fully. The contractor assumes a greater risk when he/she becomes the owner and the final decision maker for all aspects of the organization".

When sureties were asked whether there were any major differences between evaluating established contractors with whom they had no familiarity and with the young contractor, the general consensus was pretty evenly divided. Many stated that the only notable difference was in the established track record and the industry references. Others viewed it as " a known quantity vs an unknown quantity" even though they had no formal knowledge of either. The established contractors were easier to evaluate as there was more history, credit references, completion history and proven track records for them . One surety pointed out that, "the longer the track record of success, assuming no significant changes in organization, the greater the comfort level of the bond underwriter". Another responded, "surety underwriting is not an exact science. Yes, there are guidelines that we follow, but the key to emerging success is good internal controls, adequate capitalization and an "experienced" staff. Bonding <u>any</u> "new contractor" is a crap game to a certain degree and there are markets that cater to this risk by charging more money, taking specific collateral, etc.".

One important character trait that sureties insist upon, is the contractors willingness to stand behind their companies through the good times and the bad. The sureties attempt to determine this level of commitment by having the contractors personally indemnify themselves. In essence, the owner(s) of the company and their spouses sign a general contract of indemnity which specifies that the principals of the bonds will reimburse the surety, using whatever means possible including personal assets, should the surety suffer losses on their account. (A sample contract may be found in Appendix B). This procedure is required of virtually all contractors. The sureties have indicated that 100% of the young contractors must indemnify without exception. Approximately 90% of the sureties stated that indemnification, without exception, was also required for established contractors. A small remainder showed the percent to be between 95-100% for the established contractor. This was dependent on whether the company had unquestioned experience and the financial ability to reach its objectives. In all cases but one, neither the dollar size of the job nor the work program had any bearing on determining the need to indemnify. It simply rested on the contractors' willingness to stand behind the company.

II Bonding Limits and Bid Results : (Information presented in this section was extracted from questions 7, 10, 11, 14, & 18 of the questionnaire).

When issuing bonds, sureties establish amounts for each contractor beyond which no additional bonds will be issued. These are referred to as "bonding limits". In arriving at "bonding limits" for their client contractors, most sureties replied by saying that virtually each case

requires separate evaluation and involves "subjective" judgement. Those evaluation characteristics noted as being of highest priority were the combination of experience, geographic location, financial strength, current workload, and character rating. Regarding the financial perspective, the following "guidelines" were suggested for defining bonding capacity by the different respondents with the understanding that these, in themselves, are not sufficient:

a) "We like to have working capital at least equal to 10% of all work outstanding". ..... (5 respondents)

b) "In theory, a 10% case is "ideal" but in reality we can't define this. The percentage has dropped over the years, and changes depending on type of contractor: road pavers: 8-10%, subs: 8-10%, G.C. builders 5-8% (as low as 3%), much depends on nature of work". ..... (1 respondent)

c) "Our limits are set by, first, finding out what the contractor feels comfortable doing. Then accept or adjust it based on working capital and net worth". ..... (1 respondent)

d) "Extremely difficult to quantify; but very generally speaking, at least a 15 to 20 : 1 ratio of total uncompleted work on hand compared to working capital. ..... (2 respondents)

e) "As a rule of thumb, a contractor's "line" is the lesser of:
10 x (working capital) or ..... (1 respondent)
4 x (net worth)

f) Generally Speaking: ..... (1 respondent)

Typical Job Size	Bonding Limit
< $100,000	10 x working capital
$100,000 - 2,500,000	20 x working capital
$2,500,000 & up	30 x working capital

g) "From a slightly different perspective, the amount of a single bonded job should not exceed 50% of the "bonding limit".

(2 respondents)

This same result was obtained in a previous study conducted by Jimmie Hinze and W.B. Ashton (21).

The sureties were asked to give an approximation, in percent, of how many of their client contractors had been denied at least one bond request in the last 5 years. Unfortunately, a number of sureties responded that they do not keep statistics on this and, therefore had no realistic means on which to base a response. Those that did, responded as follows:

Responses	Young Contractor	Established Contractor
1	80%	60%
2	20%	5%
3	1%	0%
4	90%	70%
5	10%	1%
6	20%	10%

There were no consistent reasons cited for denying bond requests. Rather than attempting to analyze the data, the responses are given verbatim below.

The reasons given for **rejection of bond requests** included:

a) "Lack of experience on job site and/complexity"

b) "Geographic location of project"

c) "Adverse trends in financial strength"

d) "Too many jobs": overextension

e) "One extremely large job relative to contractor's past experience, this type of situation would generally cause the contractor to put all risks in one job. Prefer to see risk spread over several jobs". (Lack of diversification)

f) "Contractor wants to grow faster than we feel that he should".

g) "Total work on hand and the working capital situation".

h) "Work is of a different nature".

i) "Unusual contract terms".

j) "Managerial problems".

One surety indicated that, "More bonds are declined through ignorance than almost anything else. A second reason, would be trying to take on too big a workload. Anything that can be done to lessen these two reasons will go a long way in reducing the number of declinations and the emotions associated with them".

All sureties confirmed that when they do refuse to issue a bond, the contractor's bank is not notified as there was no reason for doing so.

Accuracy of a Bid

In order for contractors to function profitably they must ensure that all cost associated with a particular job have been included in the bid price. Should contractors enter into jobs in which this is not the case, any additional costs will have to come out of their "profit margin". Since profit margins, as of late, have been quite small this impact could be catastrophic. Sureties are well aware of this and try

to prevent this occurrence by attempting to determine the "accuracy of the bid". The sureties all agree that the only real practical means of determining the accuracy of a bid is to compare it with the bids of other contractors who actively sought the job. After the contractor is deemed to be the low bidder, the payment and performance bonds must be requested by the contractor. When this is done, the contractor is generally asked to provide the underwriter with a list of the competing bidders and their associated bid amounts. The differences between bids will reflect the diversities of opinion among the contractors as to the cost of the job. Sureties would like to see at least the three lowest bids being fairly close together as this helps assure them that the low bid is reasonably accurate. One surety stipulated that another advantage to this was that, if the contractor was to fail, there is a chance that one of the other low-bidding companies might be able to complete the job at their bid amount. A marked variance among the respective bids could be a warning that the low bidder does not have an accurate price or did not fully comprehend the extent of the work. All sureties stated that as a "general rule" whenever there is a difference of 10% or more between the low bidder and the 2nd low bidder, the surety will require the contractor to explain the difference. Other factors which enter into the 10% rule are:

1) the size of the job relative to the contractor's experience
2) the financial strength of the contractor
3) number of bids involved (the more bids there are, the more significant the bid spread)
4) the type of job (larger spreads are common in heavy construction than in general building construction).

One surety stated that, "the surety must always bond, with rare exception, the lowest bidder because it is the lowest bidder who is awarded the job. The surety has no other choice; it either bonds the low bidder or it must get out of the business" . Based on the concept of always awarding contracts to the "lowest bidder," it is understandable that the mortality rate of contractors ranks high when compared to other industries. This, in turn, has serious effects on the "loss ratios" of surety companies. (Loss ratio to be discussed later)

III KEEPING IN TOUCH DURING CONSTRUCTION : (This section draws its information from questions 4, 5 & 16 of the questionnaire).

As pointed out earlier, sureties are financially responsible for up to the face value of the bond, namely the contract price, in the event of a contractor default. During the course of construction contracts, change orders are usually inevitable and almost always increase the contract price. The sureties are interested in how these change orders will effect the contractor and what additional impact it may have on them. To keep abreast of changes, the surety relies on the following procedures: (Number of responses given in parentheses)

a) Requiring regular reports on change order information on all work in process ..... (4 responses)

b) Contractor to notify surety when the change order amount becomes greater than:

    10% of the original contract price ..... (6 responses)

    25% of the original contract price ..... (3 responses)

c) Surety is notified by the owner of all changes ..... (3 responses)

d) Change orders will be detected on quarterly "work on hand spread sheets" as required by some sureties ..... (3 responses)

Several sureties also noted that whenever a single change order increases the contract price by 15-25 % they become very interested. They would want to know if this was due to additional work or if it was a major design error ? On the other hand, if numerous change orders are being written the surety looks to see if the job is "snake bitten"-(a real lemon). It should also be noted that the bond premium must be adjusted to reflect the final contract price.

The most common means by which sureties monitor progress for jobs underway is through:

1) periodic job reports ..... (14 responses)
2) schedule status reports ..... (14 responses)
3) job site visits ..... (9 responses)
4) pay schedule status reports ..... (14 responses)
5) percent of completion reports ..... (14 responses)
6) telephone contacts ..... (5 responses)
7) direct discussions with contractors ..... (4 responses)
8) status inquiry with owners/architects ..... (4 responses)

By carefully monitoring job performance, the surety is in a better position to detect any problems which may arise during the course of work. The sooner problems are recognized, the more time will be available to alleviate them. The cost of doing so will be substantially less than had the problem(s) gone unnoticed. Obviously, all sides benefit from early detection of problems.

The financial stability of the contractor has proven to be of great importance no matter what aspect of bonding is being investigated. Once the contractor has been bonded the surety must continue to monitor the company's financial position. The sureties pointed out

that the frequency with which this is performed is dependent on the size of jobs and the degree of activity of the contractor. Most sureties require both semi-annual and annual reports. Others also require quarterly reports but noted they were not of the same detail. Responses cited were as follows:

Quarterly : internally prepared data on some jobs ..... (9 responses)

Semi: internally prepared data on most jobs ..... (12 responses)

Annually : CPA prepared reports - all jobs ..... (10 responses)

Two of the responding sureties indicated they require monthly reports for financial assessment.(A sample of a summary sheet may be found in Appendix B).

IV Warning Signs : (responses to question No. 15 of the questionnaire provided the following information).

As noted previously, early recognition of potential problem areas can save all parties concerned a great deal in potential losses. To achieve this early recognition the surety must have some guidelines, occurrences or "watchwords" that they constantly check and listen for. Some of the "tools" the sureties listed as being helpful in trying to determine whether a contractor is experiencing difficulty are as follows:

WARNING SIGNS OF CONTRACTOR PROBLEMS

a) Liens and/or claim notices ..... (5 responses)

b) Review status reports & work in progress reports
i.e., falling behind schedule, inability to promptly
close out jobs, slow pay, etc. ..... (5 responses)

c) Deteriorating financial statements ..... (5 responses)

d) Slowness of information flow ..... (3 responses)

e) Radical change in pay record ..... (4 responses)

f) Owner complaints: reports from subs and suppliers of non-payment ..... (2 responses)

g) Poor bank relations ..... (3 responses)

h) Drop in job profits: drop in working capital ..... (9 responses)

i) Street talk of contractor problems ..... (1 responses)

One surety company indicated that the time in which they "get involved" is not until a demand has been made on the bond. At this stage it may be too late to help the contractor, and little can be salvaged. Only by closely monitoring contractors' performances will it be possible to know their financial situation at a given time. This early notice is essential if surety assistance is required. Though monitoring procedures tend to help prevent contractor failure, they are by no means a panacea, nor are they to be regarded as being a substitute for efficient management on the part of the contractor.

V Failures: (information for this section was compiled by Dun & Bradstreet Reports and responses to question 13 of the questionnaire).

According to the Dun and Bradstreet Reports, the number of failures in construction has taken the following trend:

1970	1687 Contractors Failed	$137,245 Avg. Liability/Failure
1975	2262 Contractors Failed	283,309 Avg. Liability/Failure
1980	2355 Contractors Failed	319,367 Avg. Liability/Failure
1981	3614 Contractors Failed	235,689 Avg. Liability/Failure
1982	4872 Contractors Failed	282,085 Avg. Liability/Failure
1983	5247 Contractors Failed	295,131 Avg. Liability/Failure

(This data may also be found on Fig. 5). This Table emphasizes the tremendous risk being taken by the surety and the need for rigorous

underwriting criteria. One surety stated that, "the past 4 years have been extremely difficult for contractor and surety alike. Continued loss from both sides will force more stringent underwriting requirements".

Since sureties show the greatest apprehension in bonding younger contractors, the reasons leading to their failure should be examined. The questionnaire requested specific information on the causes for failure. Each of the responses are listed as follows:

1) Poor management: unbalanced staff
2) Lack of sufficient capital
3) Poor information systems
4) Entering into non-construction related activity with construction company funds.
5) Geographic dispersion
6) Lack of commitment or being too ambitious
7) Spreading himself too thin
8) Inability to make a profit and/or get jobs
9) Poor cost controls
10) Entering into an area in which they are not experienced
11) Growing too fast
12) Taking on jobs larger and more complex than they have the capacity to handle

One Surety added, "normally a young contractor has had previous experience with a large major construction company. He has usually been a project manager who has handled a number of substantial contracts by himself. When he and a friend start their own company, they believe they have the capability to do the same type of jobs, but

they do not have the financial backing. They end up over their heads or they attempt to grow too quickly and spread themselves too thin".

On 5 June 1985 the newspaper " USA TODAY" printed a section outlining why businesses fail. It is reproduced below for one's viewing.

"Most Small Business Failures can be blamed on Bad Management, According to a Survey of Owners of USA Firms with Annual Sales of $300,000 or Less:

'Reason	Percentage Citing*
Bad Management	33%
Inadequate Sales	21%
Lack of Experience	16%
Owner not Dedicated	16%
Economic Circumstances	13%
Poor Money Management	11%
High Interest Rates	7%
Overspending	5%
Other	18%

* Respondents could cite more than one Category Source:

Comprehensive Accounting Corp. Survey of 203 Firms (22).

The above table is not limited to young firms nor to the construction field. The statistics includes the many facets of the business field such as manufacturing, retailing, wholesalers and commercial services. However, by comparing these reasons with those the sureties have pointed out, it is apparent that the two coincide for the most part. This reinforces those areas which must be carefully watched to help ensure long term financial success.

CHAPTER V :
INTERVIEW RESULTS

This portion of the paper will discuss the information shared by surety representatives during "personal interviews". This information was obtained through six interviews which ranged in length from 30 minutes to 3 hours. Many of the comments made during these interviews have already been incorporated into the "questionnaire" section, as the topic areas overlapped considerably.

One of the surprising statistics pointed out by Dun & Bradstreet was that in the year 1983, the breakdown of "*Construction Failures*" gave the following results : (see Figure 8).

Years in Business	Percent Failure
Less than 5	32.5
Between 6 - 10	35.9
More than 10	31.7

It was initially believed that a much higher percentage would belong to the "Less than 5" year group due to: less experience, not being as well balanced and lower credit ratings. However, by viewing the above, a more even failure dispersion exists. The sureties were asked to comment on this and to give the reasons they felt the "seasoned contractors" were incurring such a high percentage of the failures. Some of the reasons given coincided with those previously given for young contractor failures.

All agreed that high interest rates, a sluggish business climate, the federal deficit and the poor economy have all, in one way or another, adversely affected private work, federal spending and public construction. This has resulted in there being more capacity in the industry than there is work to fill it. This brings about fierce competition. Those contractors who are unable to adequately cover all their costs will lower their already low profit margins. More successful contractors usually do not bid on those jobs that have an excessive number of bidders. The chances of someone being the low bidder due to errors in the bid or simply "buying" the job to keep going, are increased. Some contractors refuse to bid against certain bidders who consistently bid low, regardless of the number of bidders. These two reasons are useful measurements of how soundly a contractor operates.

Reasons Given For Failure (Seasoned Contractors)

As noted previously, the number of "seasoned contractors" experiencing failure is on the increase. In both questionnaires and personal interviews, the sureties were asked to give their explanations of what key factors are bringing these failures about. The four areas the surety's saw as being "key", are listed below:

1) Overextension consists of taking on more work than can be adequately handled. By "spreading themselves too thin", proper supervision becomes impossible. As a case in point, if a supervisor be asked to take on one more job than is feasible, not only will the new job suffer but all other jobs will probably suffer to some degree.

2) New Location- Working in a new geographical location brings about new areas of concern with which a contractor may not have had

to deal with previously. This is particularly true if a contractor pursues work outside of the United States. Such contractors must deal with problems associated with lower labor rates accompanied by lower productivity, the lack of qualified technicians, and lack of available materials. If overseas work is taken, contractors must also deal with the unfamiliarity of another government's rules and regulations.

3) New Management- The president of the company may decide to step down and let the son run the company. Sureties have noted from past experience that those firms in which the father had a successful enterprise have a more reduced chance of being prosperous than a firm in which the father had a mediocre career. This stems from the fact that those who were quite successful generally tended to run the show themselves. They did not properly delegate authority so that "when the time came," the son had been inadequately trained to "fill the father's shoes". On the other hand, those with mediocre careers tended to work very closely with their son's, thereby preparing them to run the business once they stepped down.

Sole owner- The problem that arises in sole ownerships is that no one has been trained to take the owner's place. The owner knows all the little "ins and outs" of what makes the company "tick". This type of knowledge takes time to acquire and implement and must be passed on from one owner to the next.

4) Disaster/Unforeseen- There are a number of categories which may fall under this heading. Examples include, fire, flood, employee fraud and strike. Of these, floods have been most destructive. One surety told of a contractor who had three jobs. Because of the

coincident impact of a flood and a strike, he was driven out of business. Though his equipment was insured, the time lag that occurred before settlement, coupled with the strike, drove overhead expenses to a point where he could not recover.

Price Fluctuations can also leave a contractor in trouble. One surety told of a contractor that had been awarded a job but had not "locked in" the price quoted by his subs. During this time, the oil prices went "through the roof" driving up prices on numerous goods. The subs were no longer able to do the job for the prices they had given earlier. This had a disastrous effect, for the contract price was already fixed leaving no way for the contractor to recover his losses.

Ratio Analysis:

The results of questionnaire responses concerning ratio analysis may be found on Fig. 9. As stated earlier, the two most important ratios used by the sureties are the working capital to the work on hand ratio and the current ratio. Noting the ratios the sureties viewed as being important led to the construction of Tables 4 through 12. These values were taken from several issues of the Dun & Bradstreet Reports. This was done to allow for easy comparison between the values given by the sureties and those of Dun & Bradstreet. The current ratio lent itself to being fairly easily compared, for most underwriters had those figures readily available. Having the figures readily available and being able to give a "value" which would stand alone were by no means one and the same however. As pointed out previously, the questionnaire respondents gave values ranging from 1.2 to 2.0 with a median response of approximately 1.50. During a personal interview, one surety was quick to point out that the

"current ratio" was completely useless if not accompanied by the working capital. A person could have current assets of $15.00 and current liabilities of $10.00 which would give him a current ratio of 1.5. Though this sounds good, it is not until the working capital is looked at ($15 - $10) that the true picture is revealed. The terms which make up the ratio are just as important as the ratio itself. In this example, a working capital of $5.00 is obtained which literally has no meaning in the construction field. On the other hand, a company that has a current ratio of 1.5 and a working capital of $200,000 presents an entirely different picture in the world of construction. Though both companies have a current ratio of 1.5 their financial status is entirely different. One surety representative stated that they would allow a current ratio as low as 1.1 "if and only if" the contractor could prove that the company's current assets were of high liquidity. Some factors which affect the liquidity of a firm are : (23)

1) "Faster turnover in receivables"

2) "Prompt billings " - reduces turnover time

3) "Careful buying of inventories"

4) "Rapid completion of jobs to get retainage"

5) "Defer payment of current liabilities"

   a) Helps to build up working capital

   b) Reduces need for working capital

One surety stated that if contractors wish to increase their working capital, they could simply borrow money from a financial institution. This would increase their current assets as well as their long term liabilities which are not included in the determination of the working

capital or current ratio. Another option given, might be to have the contractors sell some of their long term assets such as equipment. This would increase his current assets with favorable results from both the working capital and current ratio view points. Unfortunately, the operating costs would go up as equipment would have to be rented, probably at a premium.

By taking the values of the current ratios given by the surety representatives and comparing them to the range of values found on Table - 12 of Appendix A, it can be seen that the two compare favorably. In like manner, other ratio values may be compared:

Ratios	No. of Responses	Surety Responses	D & B
Current Ratio	(7)	1.2 to 2.0	1.3 to 2.8
Net Profit / Sales	(5)	3 - 5%	0.5 - 7.2 %
Net Sales / W.C.	(4)	15 - 20 to 1	6 - 21 to 1

Insufficient data was received from the sureties to make meaningful comparisons between the other ratios. The sureties stated that too many variables went into making up the ratios to give any set statistics.

In response to the study, once the various ratios have been determined for a particular firm they may be plotted on a table, similar to Table-8, to show how they compare with the norm. During the initial portion of the study, a table was found which had tabulated the Key Business Ratios of different firms including some construction firms. It is believed that this Table was constructed in

the late 70's and for illustration purposes the year 1978 was used. For the construction firms, the following values were indicated:

Company	Current Ratio (times)	Profit Sales %	Profit W.C. %	Sales W.C. (times)	C.D. N.W. %	T.D. N.W. %
Fluor	1.3	5.9	32.1	16	42	17
McDermit	1.82	3.0	11.0	3.6	84	245
Dillingham	1.44	8.9	29.0	12.4	36	60

W.C. - Working Capital C.D. - Current Debt
N.W. - New Worth T.D. - Total Debt

These Values were then graphed on a Table similar to Table 8 and may be found as Tables 13-15 in Appendix A. The information plotted is for some of the larger construction firms, so extreme values should be logically anticipated.

The Loss Ratio

One means by which a surety's performance may be assessed is through the evaluation of their loss ratio. In assessing the loss ratio, three items must be addressed. The "direct premiums written", the "direct premiums earned", and the "direct losses incurred". Each time the surety executes the contract bonds, the contractor pays a premium for the bond which is based on the contract amount. This rate is usually about 1% of the contract price. In actuality, the premium may be based on a varying rate structure depending on the size of the job. (See Appendix C for surety rates). The sum of all bond premiums added together is referred to as "the direct premiums written". These premiums are collected "up front", but as yet, have

not been earned. The surety "earns" an equal percentage of the premium each month until the job is completed. If a contract price is $240,000 and has a completion time of 24 months, assuming a bonding rate of 1%, the direct premium written will be $240,000 x (1%) = $2400 (the bond premium). The premium "earned" each month will be $2400/24 = $100. The direct losses incurred is the amount the surety company would have to pay out during a given year due to contractor default- and their "bonds" being called upon. With these terms in mind, the loss ratio may be defined as the "direct losses incurred"/ "direct premiums earned". Over the past few years, the average loss ratio for sureties in the United States have been in the range of 30 to 45 Percent while those for the State of Washington have been more erratic. (See Appendix C for more information).

Accounting Techniques

The sureties were asked to comment on the two types of accounting methods that are in present use. These are the percentage-of-completion method and the completed-contract method. The percent of completion method is preferred "when estimates of costs to complete and extent of progress toward completion of long term contracts are reasonably dependable". The completed contract method is preferred when "lack of dependable estimates or inherent hazards cause forecasts to be doubtful".

The purpose of the "percentage of completion" method is to recognize income as the work progresses and preferably when the cost estimates are reasonably dependable. In this way, income may be spread more evenly over more than one taxable period. The main disadvantage with this method lies in the ability to accurately

determine the percent of the work which has been completed. In addition to periodically recognizing income, the percentage of completion method focuses on economic activity as it reflects the financial position of the contractor. By evaluating the status of each job on a regular basis, management tends to play a more significant role. As the sureties have pointed out, anything which can help to establish the financial position of a firm and increase management participation can have only positive benefits.

The purpose of the "completed contract" method is to recognize income only when the contract is completed. This method is preferable when estimates are doubtful or when there are inherent hazards in the work undertaken. However, the main consideration leading to the use of this method are its tax advantages. It has the advantage, particularly for a contractor starting in business, of complete deferral of all taxes until after the job is completed. Thus, in the meantime, the taxable portion of the income is available for working capital. The main disadvantage as far as the sureties are concerned, is that this method does not reflect the financial status of the contractor until the project is near completion.

In order to bridge the advantages which each method offers, some companies keep two sets of books. For tax purposes the completed contracts method is employed for all jobs, while the percentage of completion method is used for internal cost control. If it is not advantageous for a company to combine the two methods, the sureties tend to favor "the percent of completion" method, as it provides them with an outlook on the financial position of the job on a periodic basis.

CHAPTER VI :

SUMMARY

With the alarming statistics on the growing number of construction company failures and the tremendous liabilities which follow, the sureties have been forced into requiring stricter underwriting criteria. Examples of these are listed below:

a) Requiring more disclosure of information on financial statements. This includes statements such as the status on uncompleted work and the balance sheet, the income statement, and the statement of changes in financial position. These forms allow the surety to determine the contractors financial position and thus play a very important role in determining the bonding capacity of the contractor. These types of reports are now being required on a more regular basis.

b) Sureties tend to require life insurance policies on the principal and key personnel of the firm. Should tragedy strike, the money may be used to help the company cope with its sudden loss.

c) Sureties have required CPA "audits" to be performed more often. With a third party involved, this helps ensure that the financial data presented is true and correct. With this information in hand, the financial position of a contractor will be able to be determined more accurately. For intermediate reports, the sureties are requiring CPA "reviews" more often, with less emphasis on "compilation reports".

d) Sureties are now requiring more breakdown on "job detail". With

a better understanding of which disciplines are involved, i.e., mechanical, electrical, civil, etc., the sureties are in a better position to determine whether the contractors have the required skill or if they are "barking up the wrong tree". Obviously, contractors who are not proficient in a particular area should sub out the work to those who are fully qualified.

e) From a slightly different perspective, more bonds are being written for subcontractors. Previously, should subcontractors become insolvent or fail to pay their bills, the responsibility fell upon the general contractor. By requiring surety bonds from subcontractors, the general contractor receives the protection needed in the event the subcontractor fails. This will help keep the job moving with minimum delay.

Though only a few sureties will bond companies with less than 3 to 5 years of experience, it is not out of animosity but rather self protection. Since sureties are set up on a no loss principal, the underwriters must use extreme care to ensure that they will not find themselves locked into a bond which may be called upon. Though young construction firms have had a higher rate of failure in the last few years, according to Dun & Bradstreet, the failure rate has begun to pretty evenly divide itself between companies 3 to 5 years of age, 6 to 10 years of age, and 10 years or more. Reasons for these failures are not present in each and every case and reasons for failure may depend on which age range they happen to occur in. For instance, while lack of experience and management skills may hurt the younger contractor, desire to expand too quickly or take on too many jobs may

be the down fall of those in the 6 to 10 group. What can take down a business that has weathered more than 10 years? Changes in market needs, changes in key personnel and getting involved in business ventures that are outside their fields of expertise. Contractors can succeed if they are willing to grow slow, select their jobs and associates with caution, give themselves a chance to gain experience and work with the sureties, trusting their analytical and judgmental skills, even if they reject a bond at a particular time.

The three types of construction bonds, the bid bond, the performance bond, and the payment bond, were discussed and the advantages or coverage each provided was noted in detail. In order to prepare a contractor contemplating application for a bond, the record requirements and what a reviewing agent would be checking for were discussed. In general, the bid bond may be obtained if the contractor possesses the three C's of credit. Namely, character, capacity and capital. The willingness of contractors to back their company by personally indemnifying against losses, that the surety might be forced to take on their account, is viewed in high regard.

To ensure the success of its no loss policy, the surety carefully monitors the contractors situation prior to issuance of any bonds. Any warning signs which may have developed since the last bond was issued are examined in detail to see what effect they might have on the contractor's performance. The bond may be refused should the surety determine that it would not be in the contractor's best interest to take on additional work at that time.

During the various phases of information gathering, minor

differences were found to exist between printed material and what is practiced in the field. Dun & Bradstreet pointed out that approximately 32 - 35 % of construction firms which fail have been in business less than 5 years. The sureties, however stated that they feel a more realistic range would be 40 - 50 percent. This was based on what they have seen over the past few years. A second discrepancy was that most printed material mentioned that the old "10% rule" is no longer in use. What this meant was that the working capital should be approximately 10% of the bonding capacity. By examining the questionnaires received from this study and the information passed on during personal interviews, it appears that a number of the sureties still use this principal as a guideline. Adjustments are then made pending a thorough analysis of the company's firm and associates.

CHAPTER VII :
CONCLUSIONS

The criteria used to evaluate contractors is both subjective and objective. The criteria is objective in the sense that all sureties recognize the need :

a) to evaluate and verify financial data

b) to review other work being performed and work previously completed

c) to determine whether sufficient funding will be available to meet the contract terms and to examine the contract provisions.

The criteria is subjective in that the honesty, integrity and willingness of contractors to stand behind their companies are assessed as well. If underwriters only required financial data for their determinations of whether or not to bond a contractor, it would not be long before someone developed a "software" package that would simply prompt the user to enter the appropriate value(s) and, in return, perform the analysis. There would be no human element, no room for human error, it would simply base its decisions on the hard "cold facts". Today however, it is only after the contractor's character has been assessed as acceptable, and after the company's capacity and capital have been determined adequate, that the surety will determine whether the contractor represents a "low risk" or not. This should indicate that the chance of a contractor default is small.

The ratio analysis showed that both the current ratio and the working capital/work on hand ratio, were of key importance. The meaning of the current ratio, when examined alone, holds very little value and should therefore be accompanied by working capital.

Young contractors and seasoned contractors tend to be evaluated on the same criteria, but with different emphasis placed on items relevant to each The surety can examine the seasoned contractors track record and see what type of performance has been observed in the past. With a young contractor, a performance trend is not yet available due to the limited time they have been in business. Though the surety will examine the young contractor's record with prior employer(s), the evaluation favors the track record. Contractors assume a much greater risk when they become the owner and the final decision maker for all aspects of an organization. This is one lesson many young contractors have yet to learn and this makes them a greater risk. To help offset their lack of experience, the sureties rely more on the young contractors financial strength and management expertise, giving these areas more weight in their prequalification evaluations.

The concept of personal indemnification has little differentiation when comparing practices concerning the young contractors with those of the more seasoned ones. The concept is not based on factors such as the dollar size of the job or work program, but is simply dependent on the contractor's willingness to stand behind the company at all times. It is only equitable that a contractor be willing

to financially back that company for which a bond guarantee is being sought. A contractor cannot expect to enjoy full opportunities for gain and expect the surety to bear the entire risk of loss alone. With this in mind, the owners feel that contractors will perform more dependably and cautiously if the activities of their company are guided by the full knowledge that their personal assets will be endangered if they become careless or lackadaisical. One surety representative stated, "the element of character, one of the prime C's of credit analysis, becomes vitally important. The willingness of the contractors to stand behind their companies and support them with their personal assets is a very important consideration to a surety. In a sense, the contractor is asked to "put his money where his mouth is", and he should view it in that light".

A contractor's financial responsibility when undertaking a new contract is very important . The contractor must be able to finance the contract from the start, provide the needed equipment and meet first payroll deadlines. From that point on, the company's financial responsibility is bound to the question of whether the contract price is adequate to meet its obligations. It is the adequacy of the contract price, much more than the wealth of the contractor at the beginning of the project, that determines the profit or loss on the job and its final financial results. Few contractors are wealthy enough to stand a heavy loss and still complete their contract without calling on their co-partner, the surety company. This is the fundamental reason that sureties pay such close attention to the bids on construction work. As this study has pointed out, all sureties question any bid which is

more than 10% below the next low bidder. The sureties would prefer to have a minimum of 3 bids in close proximity to the lowest bid. This becomes more and more important as the number of bidders increase.

The purpose of this study was to examine the surety profession as it related to the application for and receipt of contract bonds. Since there are young contractors who know very little about the bonding side of the construction business, they may approach the underwriter with both reservation and even a bit of fear. To alleviate these feelings, the contractor must first become familiar with what the prequalification process entails and how it is implemented. In understanding these concepts, it is believed that the contractors will approach their underwriter with more confidence, knowing in advance what is to be expected of them.

The focus of this paper deals with the different components that makeup the prequalification process. It gives a number of insights into those areas which sureties judge to be most critical. By carefully examining the contents of this report, contractors may be able to obtain sufficient knowledge to enable them to not only recognize their bonding needs, but also lessen the anxiety that may accompany application for those bonds .

CHAPTER VIII :
RECOMMENDATIONS TO CONTRACTOR

After examining the facts which came from this study concerning contract bonding and reasons leading to contract failures, the following recommendations are set forth for consideration and possible implementation.

Cooperation is essential when applying for contract bonds. Unless sureties are provided with all the pertinent facts they will be unable to ascertain the contractor's true financial position. If the surety is working from an erroneous data base, the contractor's bonding limit may be set higher or lower than is appropriate. Setting it too low will prevent contractors from taking on work which they could adequately handle. Conversely, some contractors may feel that a higher bonding limit will work to their advantage in that it will enable them to take on additional work. Although this is true, the rationale shows a lack of character on the part of the contractor. By placing the surety into a potentially precarious financial position, which contractors know they are not entitled to, can lead to serious problems in the future for both contractor and surety. By taking on more work than the contractor is capable of handling, the seeds of overextension are sown.

Young contractors should ensure that the individuals who have been trained in "managerial skills" play a vital role in the organization of

the firm. Having the necessary technicians and know how will not guarantee that a company will function properly and cost effectively. There must be those who can properly manage both people and all operation associated with the contract field.

The associates of any contractors should be chosen with extreme care. Contractors may become vulnerable if they fall under the influence of support personnel that claim expertise in a field where none is truly held. The positions which seem to require the greatest areas of concern were those of superintendents and estimators. Other support positions that need to be held by those proficient in their fields, are those of engineer, attorney, partner and accountant. The attorney should have experience and/or training specifically in the area of construction. The partner should have both experience and financial resources to make the partnership equally beneficial for all parties involved. The accountant should meet the criteria that has been set forth in this paper. Only a few accountants are acknowledged as being qualified to deal with all of aspects that the construction field requires. Establishment of a "solid support system" provides the contractors with the confidence and ability to place a bid. By knowing that the estimating has been correctly performed, that the contracts will be signed only when correct, and that the projects will be adequately supervised, the contractors can rest assured in the knowledge that their records are being handled in the manner required by the industry.

New contractors should not attempt to take on jobs of the same magnitude that they were responsible for while serving under the

title of superintendent or foreman elsewhere. Serving as owner instead of superintendent carries a great amount of responsibility and requires more indepth analysis of the internal workings of the company. This, coupled with the idea that all final decisions rest with the owner, should stress the need to start small and grow as experience is gained.

Should contractors decide to expand their horizons, they should only consider those fields of work which closely reflect the type of work now being performed. This will enable them to utilize their existing personnel and equipment without having to completely retrain or make major new equipment purchases. Whenever new work of substantial magnitude is to be undertaken, it may prove beneficial to form a joint venture with a contractor that has "proven himself" in the line of business under consideration. This allows the inexperienced contractor to spend more time learning from the experienced contractor, as less time will have to be devoted to every aspect of the job. The experienced contractor may already have the required equipment thereby eliminating the necessity of having to rent or purchase any additional equipment. If the contractor prefer to remain independent, the dollar size and the complexity of the task should be taken into account. If contractors usually bid jobs in the range of 1 to 2 million, they should <u>not</u> expect to bid a job of the same magnitude in a field in which they are not fully qualified. Contractors should start at the lower end of the monetary spectrum and work their way up as they gain both managerial and technical experience.

When work requires contractors to leave their "familiar"

surroundings, whether domestic of foreign, there are certain factors which must be considered. The contractor can not rely strictly on those costs they normally would have had if the job was in the contractor's own backyard. Labor rates must be adjusted to reflect the rates prevalent in the new area of work. Cost multipliers may have to be utilized to represent differential costs which exist among materials depending on where they are bought. It may also be wise to employ some "locals", or resistance from within the community may result. Only by examining each area in careful detail will the transition from home territory to unfamiliar job site territory proceed smoothly.

Good bidding practices are essential for a company which has the intention of growing and prospering. All contractors should use extreme care when preparing their bids. This ensures that all areas of work have been considered. This includes the categories of: mobilization/demobilization, overhead expenses, contingencies, etc. Perhaps the best means of ensuring completeness is through the use of comprehensive checklists. Since putting a bid together requires a great deal of time and forethought, bidding on numerous jobs in a limited time span should be avoided. Rushing through a bid usually allows room for omissions to occur. To compound the issue, should the contractor be awarded the job, the contractor would be starting a job which already has a built in loss factor. This type of error , carries a much greater impact than it did a number of years ago. With increased competition contractors no longer have the large profit margins in their bids. Today, they find themselves having to use a

"very fine" pencil to arrive at their bids. Since there are smaller profit margins, errors of this nature become critical. Once the profit margin is used up, there is but one source for the contractor draw upon, "his own pocket book". If a contractor was the low bidder, due to omissions that can be proven, the contractor should strongly consider withdrawing the bid. By not doing so, the contractor is placed into a no win situation. In addition, this can preclude contractors from bidding on other jobs in which they might stand to make a profit.

Recommendations For Further Study.

While trying to determine those areas in which contractors will be evaluated by the sureties, the researcher drew entirely on information received from the conventional surety market. Though these clearly dominate the profession, there are specialty firms which deal nearly in all cases with bonds which are unacceptable to the conventional commercial markets. A study which would delve into this subject would provide the reasons why some surety companies write bonds when others decline to do so. By comparing the two studies, a deeper understanding of the overall workings of the surety business could be obtained.

This study represents the viewpoint of the surety industry only and did not attempt to take into account the expectations a contractor has when approaching the underwriter. A study of this nature could prove very beneficial to both parties. By having a synopsis of how the sureties function, as well as, what contractors feel are the most significant factors leading to issuance of a bond, conclusions and

recommendations could be drawn. This would help facilitate the interface between these two parties which rely heavily upon one another for their continued existence.

Management plays a vital role in ensuring the longevity of a construction firm. Any study focusing on measures to curtail the likelihood of a failure, which is management-oriented, would prove extremely helpful. Some areas which could be investigated, would be: a) proper bidding techniques, b) cost control studies , c) signs of overextension and d) observance of warning signs With adequate knowledge and ability to perform these functions, perhaps "management" would no longer play such a significant role in construction failures.

All sureties indicated that "ratio analysis" comprises an important role in helping them determine the financial position of a contractor. Though no one single value for a given ratio is right or wrong there are ranges associated with each one that the surety would like to see obtained. An indepth analysis of these ratios would allow a greater understanding of why certain limits have been established and why it is so important that they be met. It would also be of interest, to approach both the contractors and accountants and get their respective viewpoints on how they see the "ratio analysis" fitting into the scheme of things. Their suggestions as to what values they feel would represent a stable firm might lead to some interesting revelations.

FOOTNOTES

1) Moody's Industrial Manual, "Apple Computer Corporation." (New York : Moody's Investors Service Inc., 1984), vol. 2, p. 6094.

2) "Fortune 500", Fortune, 29 April 1985, p. 274.

3) Moody's OTC Industrial Manual, "United States Steel Corporation". (New York : Moody's Investors Service Inc., 1984), p. 148.

4) Robert E. Norton, "A Few Adjustments and Shazam", Fortune, 29 April, 1985, p. 256.

5) The Surety Association of America & The National Association of Surety Bond Produicers, "When You Build, Should You Bond ?" (Chevy Chase, MD. : The Surety Association of America & The National Association of Surety Bond Producers, (n.d.), p.4.

6) Class notes from Professor J.W. Hinze of the University of Washington, May 1985, p. 6.

7) D.W. Pederson, Fundamentals of Contract Bonding, 3rd ed. (Seattlle, WA. : General Insurance Company of America, 1965), p. 1.

8) Ibid.,

9) Ibid.,

10) Dun & Bradstreet Corporation, 1982-1983 Business Failure Record. (New Yoork : Dun & Bradstreet Corporation, 1985), p. 3.

11) Ibid., p. 9.

12) Albert Remmen, The Contract Bond Book, (Cincinnati, OH. : The National Underwriter Company, 1977), p.28

13) Ibid., p.33

14) Ibid., pp. 45-46

15) Ibid., P. 75

16) Denton Hammond, "Granting Credit to Contractors". (New York : Touche Ross & Co., 1982), p. 58.

17) Ibid.,

18) Ibid.,

19) Albert Remmen, "The Contract Bond Book". (Cincinnati, OH. : The National Underwriter Company, 1977), p. 45.

20) Ibid., p. 313

21) Ibid., p. 24

22) "Why businesses fail", USA TODAY, 5 June 1985, Secion B, p. 1.

23) Class notes from Professor J.W. Hinze of the University of Washington, May 1985.

24) Dun & Bradstreet, Corporation, 1982-1983 Business Failure Record (New York : Dun & Bradstreet Corporation, 1985), p. 13

25) "Why businesses fail", USA TODAY, 5 June 1985, Section B, p. 1.

26) Dun & Bradstreet,Corporation, 1982-1983 Business Failure Record (New York : Dun & Bradstreet Corporation, 1985), pp. 14-15.

BIBLIOGRAPHY

1) Abbett, Robert W. Engineering Contracts and Specifications. 4th ed. New York: (publisher unknown), 1963.

2) Associated General Contractors of America/National Association of Surety Bond Producers. The Basic Bond Book. Washington, D.C. : Associated General Contractors of America, 1980.

3) Chase, Stuart. "How to read an annual report". New Jersey : Standard Oil Company, (n.d.)

4) Clough, Richard H. Construction Contracting. 3rd ed. New York : John Wiley & Sons, Inc., 1975.

5) Collier, Keith. Construction Contracts. Reston, VA. : Reston Publishing Co. Inc., 1979.

6) Corroon & Black/Dawson & Co., Inc. Bonds & Insurance for Contractors. Seattle, WA. : Corroon & Black/Dawson & Co., Inc., 1969.

7) Course notes (Contracts and Specifications Class) from Professor J.W. Hinze of the University of Washington, May 1985.

8) Dun & Bradstreet Corporation. 1982-1983 Business Failure Record. New York : Dun & Bradstreet Corporation, 1985.

9) Dun & Bradstreet, Inc. Key Business Ratios. New York : Dun & Bradstreet Inc., 1985.

10) Dunham, Clarence W., and Robert D. Young. Contracts, Specifications, and Law for Engineers. 2nd ed. New York : McGraw-Hill, Inc., 1971.

11) "Fortune 500", Fortune, 29 April 1985, p. 274.

12) Gee, Harold F. "Agent's Bonding Guide". Indianapolis, IN. : The Rough Notes Company, Inc., 1970.

13) Guerin, W.E. "How to Analyze a Contractor's Financial Statement". Reading, PA. : American Casualty Company, (n.d.).

14) Hammond, Denton. "Granting Credit to Contractors". New York : Touche Ross & Co., 1982.

15) Lane, Milton Robert. "Methods Used to Evaluate Contractors". Unpublished Masters Report, The University of Missouri, 1979.

16) Merrill Lynch, Pierce, Fenner & Smith Incorporated. How to Read a Financial Report. Published in U.S.A. : Merrill Lynch, Pierce, Fenner & Smith, Incorporated, 1984.

17) Moody's Industrial Manual. "Apple Computer Corporation". New York : Moody's Investors Service Inc., 1984, vol. 2, p. 6094.

18) Moody's OTC Industrial Manual. "United States Steel Corporation". New York : Moody's Investors Service Inc., 1984, p. 148.

19) Norton, Robert E. "A Few Adjustments and Shazam !". Fortune, 29 April 1985, p. 256.

20) Pederson, W.D. "Fundamentals of Contract Bonding". Seattle, WA. : General Insurance Company of America, 1965.

21) Remmen, Albert. "The Contract Bond Book". Cincinnati, OH. : The National Underwriter Company, 1977.

22) Robert Morrris Associates. Annual Statement Studies. Philadelphia, PA. : Robert Morris Associates, 1984.

23) Rothschild, Bernard B. "Construction Bonds and Insurance Guide". Washington, D.C. : The American Institute of Architects, 1979.

24) Sweet, Justin. Legal Aspects of Architecture Engineering and the Construction Process. St. Paul, MN : West Publishing Co., 1970.

25) The Surety Association of America & The National Association of Surtey Bond Producers. When You Build, Should You Bond ? Chevy Chase, MD. : The Surety Association of America & The National Association of Surety Bond Producers, (n.d.).

26) "Why businesses fail". USA TODAY, 5 June 1985, Section B, p. 1.

Interviews

1) Burke, Richard. Surety Underwriter for Industrial Indemnity, Seattle, Washington. Personal Interview, 11 June, 1985.

2) Evans, William K., Surety Underwriter for Continental Insurance Co., Seattle, Washington. Personal Interview, 29 May, 1985.

3) Hammett, Peter. Brokerage Agent for Parker Smith & Feek Inc., Seattle, Washington. Personal Interview, 24 April, 1985.

4) Heine, Ed. President of Surety Underwriters Association of Seattle. Surety Underwriter for Federal Insurance Company, Seattle, Washington. Personal Interview, 29 May, 1985.

5) Huntzinger, Paul. Surety Underwriter for Aetna, Seattle, Washington. Personal Interview, 4 June, 1985.

6) Reynolds, Sally. Surety Underwriter for Reliance/United Pacific Surety Managers, Inc., Seattle, Washington. Personal Interview, 5 June, 1985.

APPENDIX A :

DATA FIGURES

COMPARISON TO KEY BUSINESS RATIOS*

INDUSTRY: *GENERAL BUILDING CONTRACTORS*

	CURRENT RATIO (times)	PROFIT SALES (%)	PROFIT WORKING CAPITAL (%)	SALES WORKING CAPITAL (times)	CURRENT DEBT NET WORTH (%)	TOTAL DEBT NET WORTH (%)
A	2.02	3.08	36.63	22.28	69.3	105.4
B	1.54	1.53	17.43	13.43	133.1	202.8
C	1.24	0.74	9.17	6.61	229.6	320.2

A) UPPER QUARTILE RANGE
B) INDUSTRY MEDIAN
C) LOWER QUARTILE RANGE

*AS PUBLISHED BY DUN & BRADSTREET FOR THE YEAR ENDED DECEMBER 31, 1971

Table-4

COMPARISON TO KEY BUSINESS RATIOS*

INDUSTRY: *GENERAL BUILDING CONTRACTORS*

	CURRENT RATIO (times)	PROFIT SALES (%)	PROFIT WORKING CAPITAL (%)	SALES WORKING CAPITAL (times)	CURRENT DEBT NET WORTH (%)	TOTAL DEBT NET WORTH (%)
A	1.83	2.39	27.77	26.32	84.5	115.8
B	1.42	1.07	16.39	13.11	151.3	195.0
C	1.20	0.48	6.70	8.72	231.6	275.9

A) UPPER QUARTILE RANGE
B) INDUSTRY MEDIAN
C) LOWER QUARTILE RANGE

*AS PUBLISHED BY DUN & BRADSTREET FOR THE YEAR ENDED DECEMBER 31, 1973

Table-5

COMPARISON TO KEY BUSINESS RATIOS*

INDUSTRY: *GENERAL BUILDING CONTRACTORS*

	CURRENT RATIO (times)	PROFIT SALES (%)	PROFIT WORKING CAPITAL (%)	SALES WORKING CAPITAL (times)	CURRENT DEBT NET WORTH (%)	TOTAL DEBT NET WORTH (%)
A	1.77	2.96	42.16	24.43	73.5	123.9
B	1.43	1.13	16.67	15.02	133.8	234.0
C	1.23	0.44	7.07	8.19	235.6	388.9

A) UPPER QUARTILE RANGE
B) INDUSTRY MEDIAN
C) LOWER QUARTILE RANGE

*AS PUBLISHED BY DUN & BRADSTREET FOR THE YEAR ENDED DECEMBER 31, 1975

Table-6

COMPARISON TO KEY BUSINESS RATIOS*

INDUSTRY: ***GENERAL BUILDING CONTRACTORS***

	CURRENT RATIO (times)	PROFIT SALES (%)	PROFIT WORKING CAPITAL (%)	SALES WORKING CAPITAL (times)	CURRENT DEBT NET WORTH (%)	TOTAL DEBT NET WORTH (%)
A	2.24	2.80	29.16	19.46	53.6	105.4
B	1.54	1.50	14.86	10.60	116.2	196.1
C	1.27	0.56	5.64	4.74	202.6	302.8

A) UPPER QUARTILE RANGE
B) INDUSTRY MEDIAN
C) LOWER QUARTILE RANGE

*AS PUBLISHED BY DUN & BRADSTREET FOR THE YEAR ENDED DECEMBER 31, 1976

Table-7

COMPARISON TO KEY BUSINESS RATIOS*

INDUSTRY: ***GENERAL BUILDING CONTRACTORS***

	CURRENT RATIO (times)	PROFIT SALES (%)	PROFIT WORKING CAPITAL (%)	SALES WORKING CAPITAL (times)	CURRENT DEBT NET WORTH (%)	TOTAL DEBT NET WORTH (%)
A	2.72	5.24	43.20	18.52	35.4	84.4
B	1.63	1.87	20.08	11.26	120.7	136.8
C	1.38	0.62	8.37	4.79	216.3	275.1

A) UPPER QUARTILE RANGE
B) INDUSTRY MEDIAN
C) LOWER QUARTILE RANGE

*AS PUBLISHED BY DUN & BRADSTREET FOR THE YEAR ENDED DECEMBER 31, 1978

Table-8

COMPARISON TO KEY BUSINESS RATIOS*

INDUSTRY: ***GENERAL BUILDING CONTRACTORS***

	CURRENT RATIO (times)	PROFIT SALES (%)	PROFIT WORKING CAPITAL (%)	SALES WORKING CAPITAL (times)	CURRENT DEBT NET WORTH (%)	TOTAL DEBT NET WORTH (%)
A	2.57	6.11	**	19.68	35.4	48.1
B	1.61	2.94	**	10.69	97.3	118.6
C	1.25	1.25	**	5.08	205.6	244.8

A) UPPER QUARTILE RANGE
B) INDUSTRY MEDIAN
C) LOWER QUARTILE RANGE

* AS PUBLISHED BY DUN & BRADSTREET FOR THE YEAR ENDED DECEMBER 31, 1979

** NOT CALCULATED

Table-9

COMPARISON TO KEY BUSINESS RATIOS*

INDUSTRY: ***GENERAL BUILDING CONTRACTORS***

	CURRENT RATIO (times)	PROFIT SALES (%)	PROFIT WORKING CAPITAL (%)	SALES WORKING CAPITAL (times)	CURRENT DEBT NET WORTH (%)	TOTAL DEBT NET WORTH (%)
A	2.54	6.63	**	18.89	40.0	53.85
B	1.58	3.22	**	10.26	106.7	129.05
C	1.24	1.48	**	4.94	217.35	254.6

A) UPPER QUARTILE RANGE
B) INDUSTRY MEDIAN
C) LOWER QUARTILE RANGE

* AS PUBLISHED BY DUN & BRADSTREET FOR THE YEAR ENDED DECEMBER 31, 1980

** NOT CALCULATED

Table-10

COMPARISON TO KEY BUSINESS RATIOS*

INDUSTRY: *GENERAL BUILDING CONTRACTORS*

	CURRENT RATIO (times)	PROFIT SALES (%)	PROFIT WORKING CAPITAL (%)	SALES WORKING CAPITAL (times)	CURRENT DEBT NET WORTH (%)	TOTAL DEBT NET WORTH (%)
A	2.75	7.75	**	20.9	33.2	47.3
B	1.60	3.15	**	11.3	91.9	114.6
C	1.25	1.10	**	6.1	198.5	233.1

A) UPPER QUARTILE RANGE
B) INDUSTRY MEDIAN
C) LOWER QUARTILE RANGE

* AS PUBLISHED BY DUN & BRADSTREET FOR THE YEAR ENDED DECEMBER 31, 1982

** NOT CALCULATED

Table-11

COMPARISON TO KEY BUSINESS RATIOS*

INDUSTRY: ***GENERAL BUILDING CONTRACTORS***

	CURRENT RATIO (times)	PROFIT SALES (%)	PROFIT WORKING CAPITAL (%)	SALES WORKING CAPITAL (times)	CURRENT DEBT NET WORTH (%)	TOTAL DEBT NET WORTH (%)
A	2.80	7.20	**	21.4	29.2	41.6
B	1.70	2.60	**	11.2	82.2	102.9
C	1.30	0.50	**	5.9	180.6	215.8

A) UPPER QUARTILE RANGE
B) INDUSTRY MEDIAN
C) LOWER QUARTILE RANGE

* AS PUBLISHED BY DUN & BRADSTREET FOR THE YEAR ENDED DECEMBER 31, 1983
** NOT CALCULATED

Table-12

COMPARISON TO KEY BUSINESS RATIOS*

INDUSTRY: *GENERAL BUILDING CONTRACTORS*

FLUOR COMPANY

	CURRENT RATIO (times)	PROFIT SALES (%)	PROFIT WORKING CAPITAL (%)	SALES WORKING CAPITAL (times)	CURRENT DEBT NET WORTH (%)	TOTAL DEBT NET WORTH (%)
A	2.72	5.24	43.20	18.52	35.4	84.4
B	1.63	1.87	20.08	11.26	120.7	136.8
C	1.38	0.62	8.37	4.79	216.3	275.1

A) UPPER QUARTILE RANGE
B) INDUSTRY MEDIAN
C) LOWER QUARTILE RANGE

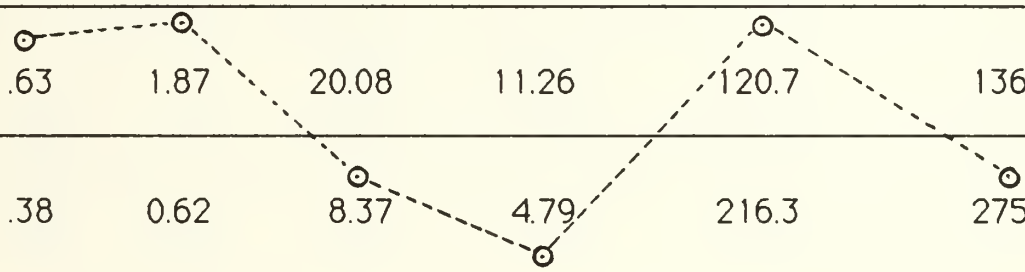
*AS PUBLISHED BY DUN & BRADSTREET FOR THE YEAR ENDED DECEMBER 31, 1978

COMPARISON TO KEY BUSINESS RATIOS*

INDUSTRY: *GENERAL BUILDING CONTRACTORS*

McDERMIT COMPANY

	CURRENT RATIO (times)	PROFIT SALES (%)	PROFIT WORKING CAPITAL (%)	SALES WORKING CAPITAL (times)	CURRENT DEBT NET WORTH (%)	TOTAL DEBT NET WORTH (%)
A	2.72	5.24	43.20	18.52	35.4	84.4
B	1.63	1.87	20.08	11.26	120.7	136.8
C	1.38	0.62	8.37	4.79	216.3	275.1



A) UPPER QUARTILE RANGE
B) INDUSTRY MEDIAN
C) LOWER QUARTILE RANGE

*AS PUBLISHED BY DUN & BRADSTREET FOR THE YEAR ENDED DECEMBER 31, 1978

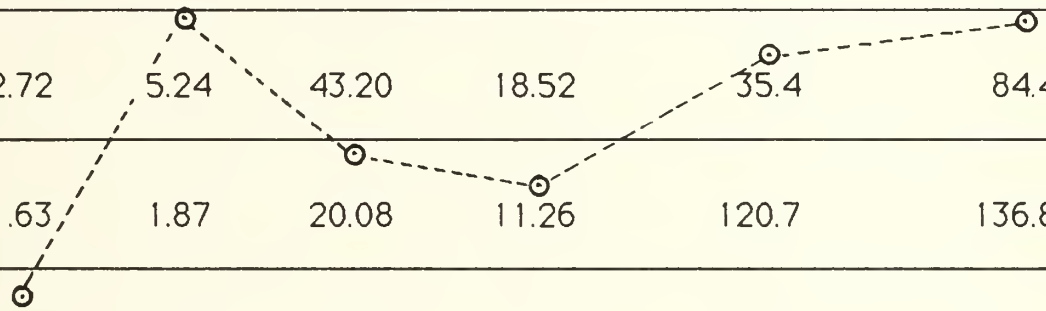
Table-14

COMPARISON TO KEY BUSINESS RATIOS*

INDUSTRY: *GENERAL BUILDING CONTRACTORS*

DILLINGHAM COMPANY

	CURRENT RATIO (times)	PROFIT SALES (%)	PROFIT WORKING CAPITAL (%)	SALES WORKING CAPITAL (times)	CURRENT DEBT NET WORTH (%)	TOTAL DEBT NET WORTH (%)
A	2.72	5.24	43.20	18.52	35.4	84.4
B	1.63	1.87	20.08	11.26	120.7	136.8
C	1.38	0.62	8.37	4.79	216.3	275.1



A) UPPER QUARTILE RANGE
B) INDUSTRY MEDIAN
C) LOWER QUARTILE RANGE

*AS PUBLISHED BY DUN & BRADSTREET FOR THE YEAR ENDED DECEMBER 31, 1978

Table-15

APPENDIX B :

DOCUMENTS & AGREEMENTS USED BY SURETIES

214695

Th
M6
c.

Thesis
M6554 Mlekush
c.1 Means by which sureties evaluate a contractor's financial stability.

4 MAR 88 32601

214695

Thesis
M6554 Mlekush
c.1 Means by which sureties evaluate a contractor's financial stability.

Means by which sureties evaluate a contr
3 2768 000 68330 4
DUDLEY KNOX LIBRARY